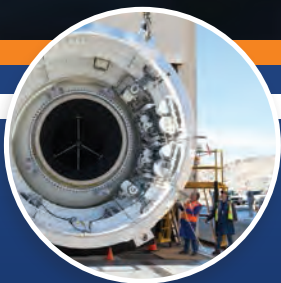




# SPACE LAUNCH SYSTEM

A CASE FOR SMALL BUSINESS



Office of  
**Small Business Programs** (OSBP)  
where small business makes a **big** difference



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# VISION STATEMENT

The vision of the Office of Small Business Programs (OSBP) at NASA Headquarters is to promote and integrate all small businesses into the competitive base of contractors that pioneers the future in space exploration, scientific discovery, and aeronautics research.

# MISSION STATEMENT

Our mission in the Office of Small Business Programs is to:

- advise the Administrator on all matters related to NASA small business programs; promote the development and management of NASA programs that assist all categories of small business;
- develop small businesses in high-tech areas that include technology transfer and commercialization of technology; and
- provide small businesses maximum practicable opportunities to participate in NASA prime contracts and subcontracts.



# Message from the National Aeronautics and Space Administration Administrator



At NASA, we are on a journey to Mars, and small businesses are helping us get there. In fact, our partners in the small business community have always been by our side as we made each giant leap in exploration.

The Agency has been engaged in the Earth-reliant stage since the beginning of the Shuttle program, and we have really intensified our efforts with continuously living and working on the International Space Station (ISS) over the past 16 years. Then, as we move farther out with Orion and the Space Launch System (SLS) to begin operations in cislunar space, we will be testing new technologies in the proving ground of deep space. Finally, when we place humans in the Martian environment, we will have become Earth independent, with very little help from Earth and significant delays in communications. With the success of our partners in commercial cargo, we were able to ensure that the ISS could be resupplied with provisions as well as new research and equipment, through its extension to 2024.

Along with the commercial crew program, which I am confident will be successful, we have also freed up NASA to focus on the farther horizons, sending astronauts in Orion on the Space Launch System to cislunar space, to an asteroid, and on to Mars. It has allowed us to develop technology to drive that exploration, so now we can work on solar electric propulsion, a better life support system, habitats, and the like.

The SLS rocket will be the most powerful ever built and will someday propel American astronauts to deep space. SLS has moved from concept to development, and it is meeting critical milestones in its construction and assembly. This achievement would not have been possible without America's small business suppliers highlighted in this publication, which embody the entrepreneurial spirit and drive to innovate, design, and deliver critical groundbreaking tools and services that make SLS a reality.

Each of us, as individuals, has a role to play in making this journey possible. I challenge you to recognize that by working together with small business, we will reach our goal of sending astronauts to the Red Planet in the 2030s.

Thanks to each and every one of you for all you do to turn science fiction into science fact and to make the impossible possible. It is because of you, I can say with great confidence today—small business truly makes a BIG difference!

A handwritten signature in black ink, which appears to read "CFB125".

Charles F. Bolden, Jr.  
Administrator  
NASA





# Message from the Office of Small Business Programs Associate Administrator



This publication highlights the amazing accomplishments and extraordinary efforts of over 800 small businesses located across 43 states that have contributed to the Space Launch System Program. These

companies have provided an array of products and services to support the program, from precision fasteners to engineering and procurement services, not to mention the development of alloy products for Aerojet's RS-25 rocket engines, designing and qualifying critical components for the Boeing SLS core stage, and manufacturing the Launch Vehicle Stage Adapter pedestals.

The featured small businesses are just a microcosm of the numerous high-tech firms that enable NASA to complete its missions. They have been able to perform under rigorous standards and due to their success, witnessed growth in revenue, personnel, and organizational capabilities.

The NASA Small Business Program has the ardent support of the Agency Senior Management, the NASA Mission Directorates, acquisition personnel, and the mission support offices. I would like to especially recognize Administrator Charles F. Bolden's commitment to the program. In addition, I would also like to thank Mr. William McNally, Assistant Administrator, Office of Procurement and the Center

Directors and the Procurement Officers located at each of the Centers. The NASA Small Business Program would not be as successful without the dedication and hard work of the Agency's Small Business Specialists. They have the tough assignment of ensuring small businesses are afforded the maximum practicable opportunities to participate in NASA prime contracts and subcontracts.

Another special recognition goes to the Center Small Business Technical Advisors and Small Business Technical Coordinators who collaborate with the Small Business Specialists to interpret technical capabilities and assist them in identifying accomplished small businesses. These companies prove that when opportunities arise, they can get the job done.

In closing, I want to thank these companies and all other small businesses that support NASA every day in various capacities that enable the Agency to be successful. Without their dedication, NASA would not be able to accomplish as much as it does. As you can see from the small businesses included in this publication, NASA is an agency "Where Small Business Makes a Big Difference."

A handwritten signature in black ink, reading "Glenn A. Delgado". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

**Glenn A. Delgado**  
Associate Administrator  
NASA Office of Small Business Programs





# Message from the Space Launch System Program Manager



As a key element in NASA's Journey to Mars, Space Launch System represents a new national infrastructure capability, and creating that capability requires the work of a nation. Our team of hundreds of partners around the

country, including many small businesses, has played a key role in the work leading up to our successful completion of the Critical Design Review last year, and will be even more vital as we continue our push toward the launch pad.

The challenges of building a rocket for human exploration of deep space are immense, as are the rigors this rocket must be designed and built to withstand during launch. Meeting those challenges requires a talented and capable team. Our small

business partners have demonstrated, and continue to provide, hard work and expertise that have kept this program moving rapidly toward initial launch capability.

Today, with this team we are completing test articles and qualifying vehicle elements, and have begun work on the hardware for the first launch of Space Launch System, which will propel the Orion spacecraft farther into space than any vehicle designed for human space flight has ever ventured. Without doubt, we cannot build this big rocket without small business.

A handwritten signature in black ink that reads "John Honeycutt". The signature is fluid and cursive.

**John Honeycutt**

Space Launch System Program Manager



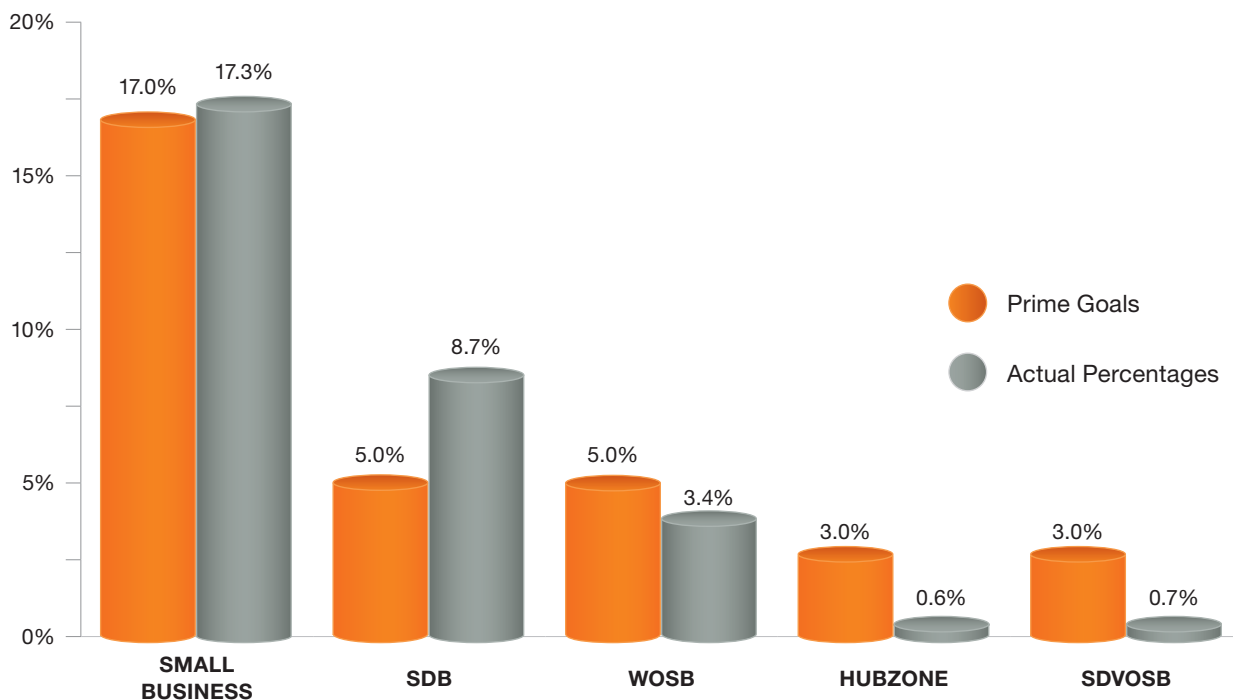
# The Metrics: Small Business Achievements at NASA

## FISCAL YEAR 2015 AGENCY METRICS

### NASA AGENCY FY 2015 PRIME GOALS VS. ACTUAL PERCENTAGES

Data generated February 19, 2016, from the Federal Procurement Data System–Next Generation (FPDS-NG)

CATEGORY	DOLLARS
Total Dollars	\$14,417,976,809
Small Business	\$2,498,551,080
Small Disadvantaged Businesses (SDB)	\$1,255,064,849
Woman-Owned Small Businesses (WOSB)	\$485,868,302
Historically Underutilized Business Zones (HUBZone)	\$89,762,696
Service-Disabled Veteran–Owned Small Businesses (SDVOSB)	\$102,953,179

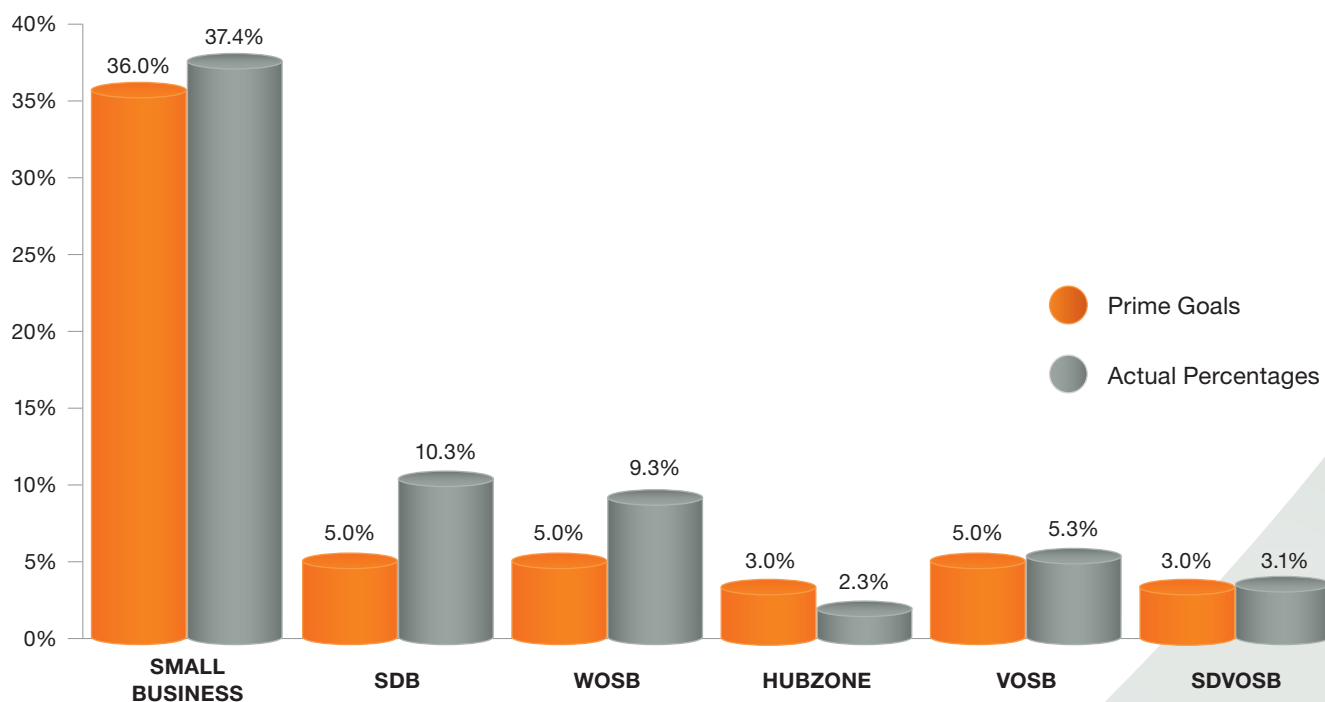


## FISCAL YEAR 2015 AGENCY SUBCONTRACTING METRICS

### NASA AGENCY FY 2015 SUBCONTRACTING GOALS VS. ACTUAL PERCENTAGES

Data generated January 29, 2016, from the Electronic Subcontracting Reporting System (eSRS)

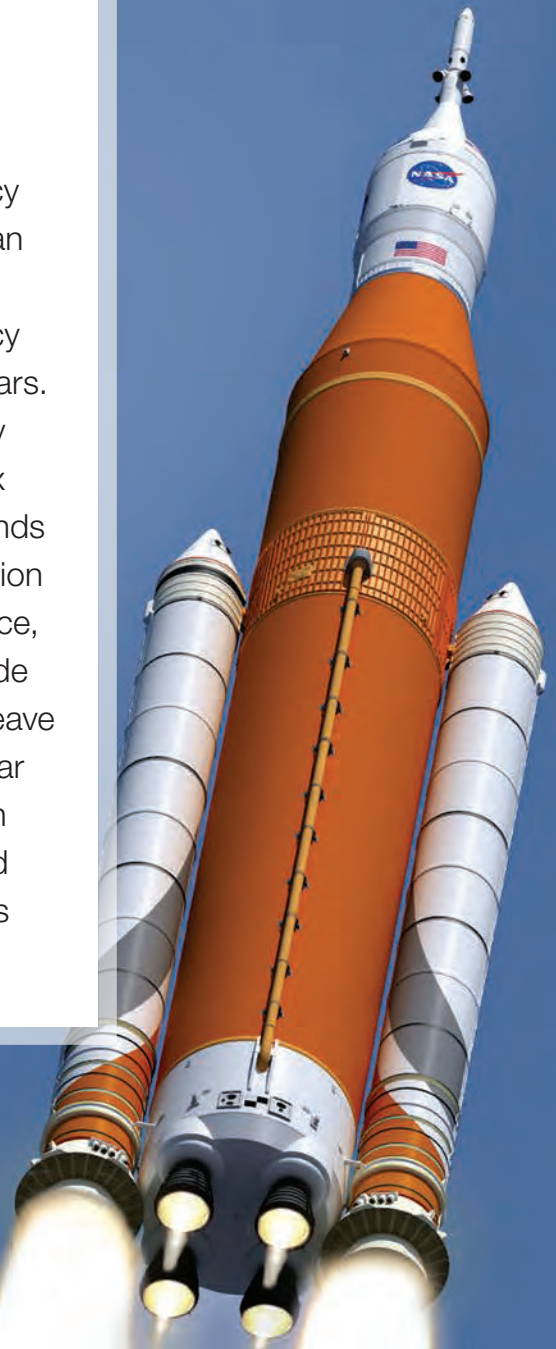
CATEGORY	DOLLARS
Total Dollars	\$6,526,276,413
Small Business	\$2,439,408,283
Small Disadvantaged Businesses (SDB)	\$673,739,989
Woman-Owned Small Businesses (WOSB)	\$608,048,392
Historically Underutilized Business Zones (HUBZone)	\$147,882,134
Veteran-Owned Small Businesses (VOSB)	\$343,423,063
Service-Disabled Veteran-Owned Small Businesses (SDVOSB)	\$201,194,277





# SPACE LAUNCH SYSTEM (SLS)

NASA's Journey to Mars has begun. By integrating science, technology, and exploration efforts, the Agency has created momentum that leads ultimately to a human mission to the Red Planet. Recognizing the magnitude of the challenge and the resources required, the Agency has developed a stepping-stone path to humans on Mars. The journey to making this vision reality is progressively evolving capabilities and pursuing increasingly complex missions as NASA's sphere of human operations expands further from Earth. Key to these missions will be the Orion crew vehicle, which will carry astronauts into deep space, and the Space Launch System rocket, which will provide the power for Orion and other exploration systems to leave Earth and begin their outward odyssey through the solar system. Hardware for the world's most powerful launch vehicle for exploration is being welded, assembled, and tested today in high bays, clean rooms, and test stands across the United States.



# Small Business and the Space Launch System

NASA's Space Launch System, or SLS, is a powerful, advanced launch vehicle for a new era of human exploration beyond Earth's orbit. With its unprecedented power and capabilities, SLS will launch crews of up to four astronauts in the Agency's Orion spacecraft on missions to explore multiple deep-space destinations. Offering more payload mass, volume capability, and energy to speed missions through space than any current launch vehicle, SLS is designed to be flexible and evolvable and will open new possibilities for payloads, including robotic scientific missions to places like Mars, Saturn, and Jupiter.

In 2015, NASA completed the Critical Design Review of the SLS—a first for a NASA human-rated launch vehicle since the one completed for the Space Shuttle almost 40 years ago. Engineers continue to make progress aimed toward delivering the first SLS rocket in 2018, which will go to NASA's Kennedy Space Center in Florida for its first launch.

To fit NASA's future needs for deep-space missions, SLS is designed to evolve into increasingly powerful configurations. The first SLS vehicle, called Block 1, has a minimum 70 metric ton (77 t) lift capability. It will be powered by twin five-segment solid rocket boosters and four RS-25 liquid propellant engines, as well as a modified version of an existing upper stage. The next planned evolution of the SLS, Block 1B, will use a new, more powerful Exploration Upper Stage (EUS) to enable more ambitious missions and deliver a 105 metric ton (115 t) lift capacity. A later evolution, Block 2, would replace the current five-segment boosters with a pair of advanced solid- or liquid-propellant boosters to provide a 130 metric ton (143 t) lift capacity. In each configuration, SLS will continue to use the same core stage design with four RS-25 engines.

An evolvable architecture allows NASA to provide the nation with a rocket able to pioneer new human space flight



This artist rendering shows an aerial view of the liftoff of the 70-metric-ton (77-ton) lift capacity configuration SLS from the launchpad.





A hotfire test of the SLS's core stage RS-25 rocket engine took place on May 28, 2015, at NASA's Stennis Space Center, near Bay St. Louis, Mississippi. Photo Credit: NASA

missions and revolutionary scientific missions in the shortest time possible, while continuing to develop more powerful configurations. The next wave of human exploration will take astronauts farther into the solar system—developing new technologies, inspiring future generations and expanding our knowledge about our place in the universe.

The Boeing Company, headquartered in Chicago, IL, is developing the SLS core stage, including the avionics that will control the vehicle during flight. Towering more than 200 feet and with a diameter of 27.6 feet, the core stage will store 730,000 gallons of super-cooled liquid hydrogen and liquid oxygen that will fuel the RS-25 engines for the SLS. The core stage is being built at NASA's Michoud Assembly Facility in New Orleans, LA, using state-of-the-art manufacturing equipment, including a friction-stir welding tool that is the largest of its kind in the world. At the same time, the rocket's avionics computer software is being developed at NASA's Marshall Space Flight Center in Huntsville, AL.

Propulsion for the SLS core stage will be provided by four RS-25 engines. Aerojet Rocketdyne of Sacramento, CA, is upgrading an inventory of 16 RS-25 shuttle engines to SLS performance requirements. The requirements include a new engine controller and nozzle insulation as well as meeting an operation requirement of 418,000 pounds of thrust instead of

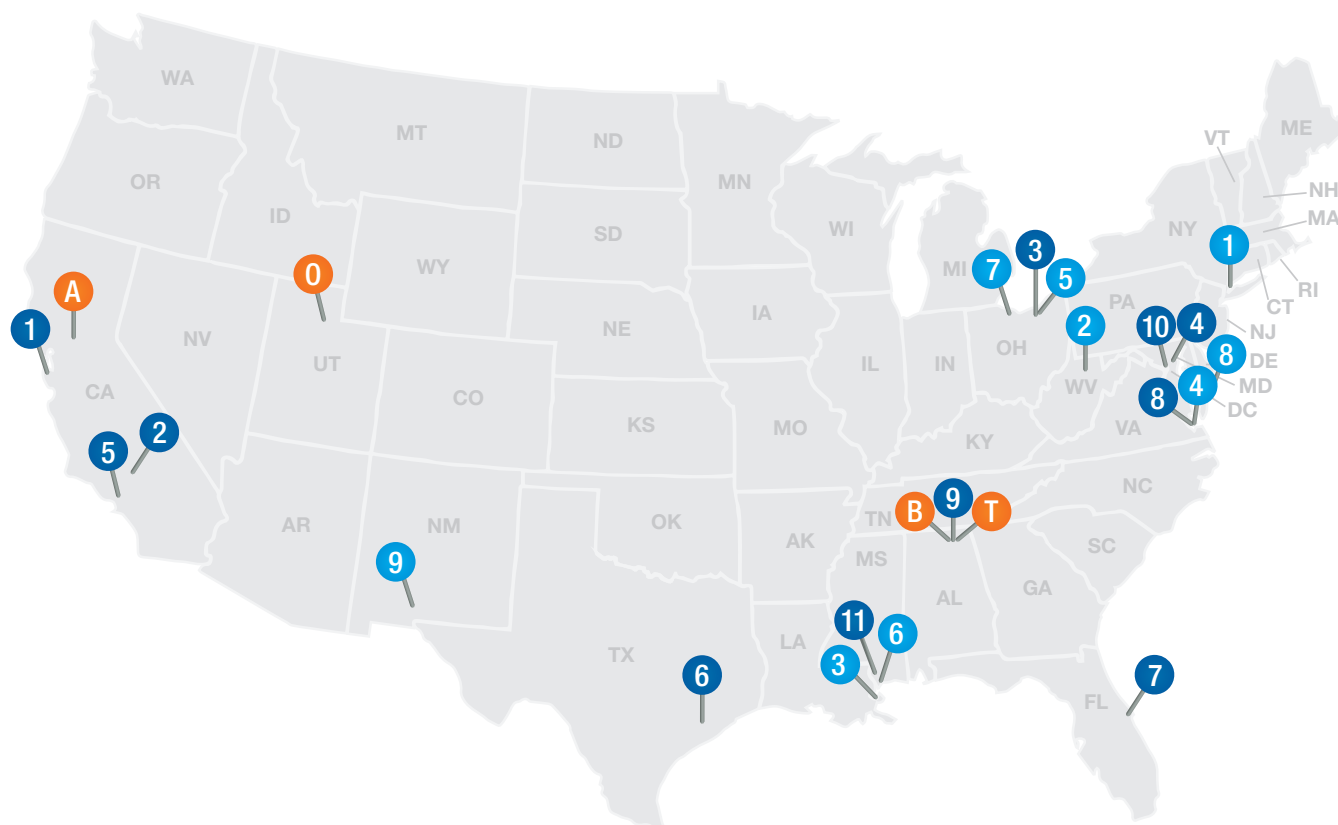
the 395,000 pounds of thrust normally used for shuttles.

Two shuttle-derived solid rocket boosters will be used for the initial flights of the SLS. Each one provides 3.6 million pounds of thrust. To provide the additional power needed for the rocket, the prime contractor for the boosters—Orbital ATK, headquartered in Dulles, VA—has modified them from the shuttle's configuration of four propellant segments to a five-segment version. The design also includes new avionics, propellant design, and case insulation and elimination of the recovery parachutes. Orbital ATK has successfully completed a full-duration booster qualification ground test, and is preparing for a second qualification test firing in 2016.

Exploration Flight Test-1, Orion's first trip to space in 2014, marked the first use of hardware designed for SLS: a stage adapter that connected Orion to a rocket upper stage. The SLS team responsible for integrating the Orion spacecraft and other payloads with the vehicle developed the adapter. The same adapter design will be used on the Exploration Mission-1 (EM-1) scheduled for launch in 2018. Another larger adapter is being built by Teledyne Brown Engineering of Huntsville, and will connect SLS's core stage to the upper stage for its first flight.

The initial capability to propel Orion out of Earth's orbit for EM-1 will come from an Interim Cryogenic Propulsion Stage (ICPS), which is based on the Delta Cryogenic Second Stage that was used successfully on United Launch Alliance's Delta IV family of rockets. It uses one RL-10 engine powered by liquid hydrogen and oxygen and generates 24,750 pounds of thrust.

# Map



## NASA CENTERS

1. Ames Research Center
2. Armstrong Flight Research Center
3. Glenn Research Center
4. Goddard Space Flight Center
5. Jet Propulsion Laboratory
6. Johnson Space Center
7. Kennedy Space Center
8. Langley Research Center
9. Marshall Space Flight Center
10. NASA Headquarters
11. Stennis Space Center



## NASA FACILITIES

1. Goddard Institute for Space Studies
2. Independent Verification and Validation Facility
3. Michoud Assembly Facility
4. NASA Engineering and Safety Center
5. NASA Safety Center
6. NASA Shared Services Center
7. Plum Brook Station
8. Wallops Flight Facility
9. White Sands Test Facility



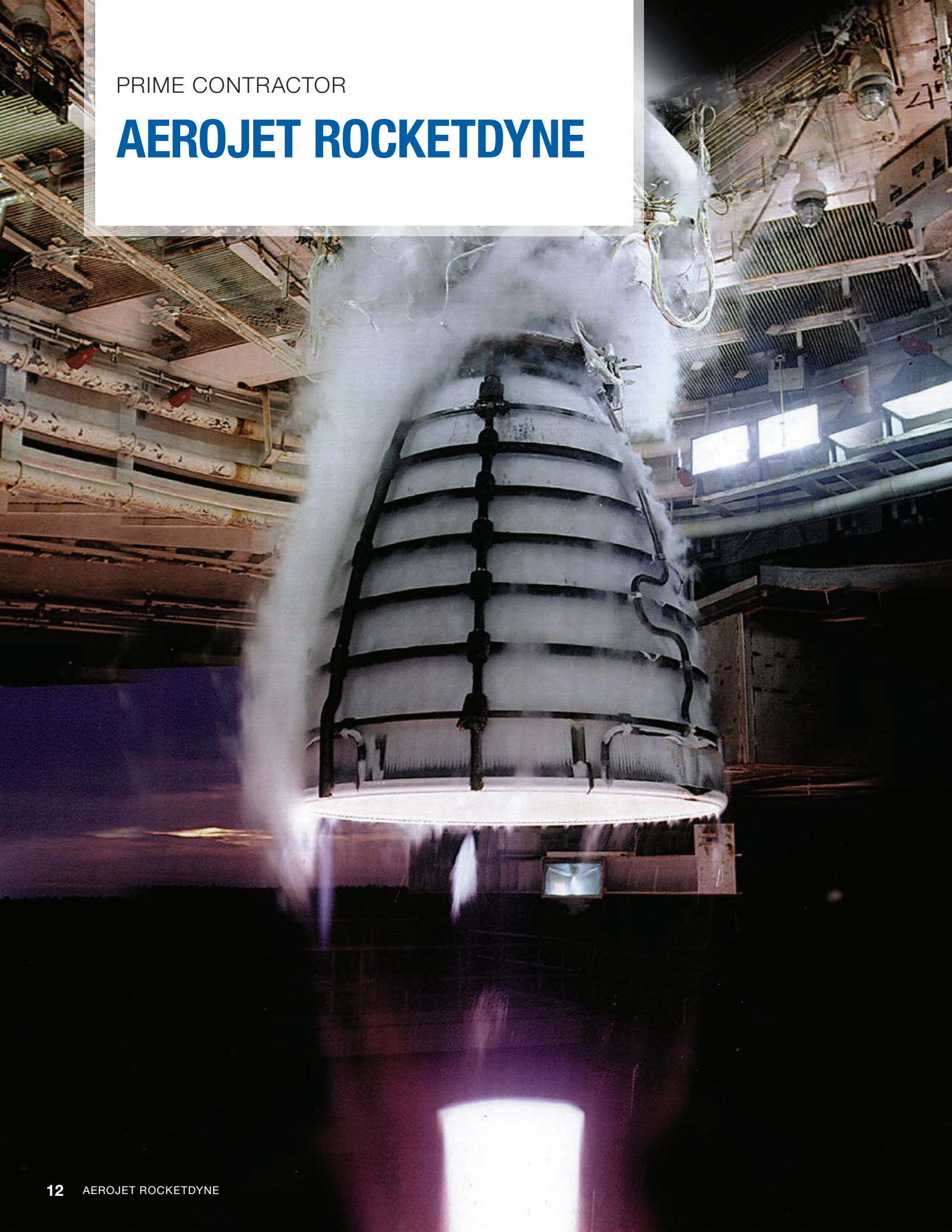
## SLS PRIME CONTRACTORS

- A. Aerojet Rocketdyne
- B. The Boeing Company
- O. Orbital ATK
- T. Teledyne Brown Engineering



PRIME CONTRACTOR

**AEROJET ROCKETDYNE**



## Message from Aerojet Rocketdyne SLS Program Manager



It is not an exaggeration to write that we could not get off the launch pad and head to Mars if not for the great work and support of our small business partners across the nation. Four Aerojet Rocketdyne RS-25 rocket engines

will provide over 2 million pounds of thrust for NASA's Space Launch System, just as three Space Shuttle Main Engines (SSMEs) provided the power for all 135 Space Shuttle missions for over 30 years.

The RS-25 (and its SSME predecessor) is the most reliable hydrogen-fueled booster engine ever designed and flown, and our small business suppliers have been integral to that success since the beginning. As we continue our Journey to Mars, we are currently partnered with more than 20 small business suppliers, in nine states across the nation. Our investment is not trivial: since 2006, we have committed close to \$250 million to small businesses.

This money has been well spent, as I am constantly amazed at the technical skills, creativity, innovation, energy, and enthusiasm that small businesses infuse into our engines and more importantly, into America's space program. This is indeed "rocket science," and we could not do it without you.

On behalf of Aerojet Rocketdyne, congratulations and a sincere thanks for your continued support. I look forward to your growing contributions in our future exploration of space.

A handwritten signature in dark ink, appearing to read 'Dan Adamski', written in a cursive style.

**Dan Adamski**  
Space Launch System Program Manager  
Advanced Space & Launch  
Aerojet Rocketdyne



## Tell us about your company's history and its capabilities.

3-Dimensional Services Group—consisting of 3-Dimensional Services (founded in 1992), Urgent Plastic Services (founded in 1997), and Urgent Design & Manufacturing (founded in 1999)—is a global leader in full-service prototype, low-volume production and assembly. We utilize state-of-the-art technology to provide flexible manufacturing solutions to our customers. We have a unique approach to tooling and design validation that meets the demands of today's compressed timing without compromising quality. Our capabilities include rapid prototyping solid models, computer numerical control (CNC) machining, forming simulation, stamping, castings, injection molding, and waterjet and laser processing.

## How many employees does your company have?

3-Dimensional Services has 320 employees across 4 facilities in Michigan.

## How long have you supported the SLS Program?

3-Dimensional Services has supported the SLS Program since 2012.

## Describe what services or support you provided to the SLS Program.

3-Dimensional Services, working with the Aerojet Rocketdyne engineering team, has improved the manufacturing of components used in the RS-25 Engine. We have reduced the amount of time it takes to provide those components, and at a cost savings. We also have provided special tooling that is resistant to the chemicals used in the processes to protect or insulate various areas on the RS-25 engine.



Complex forming of unique materials

## How has your business evolved or grown supporting the SLS Program?

The SLS Program has provided 3-Dimensional Services with a vision that encourages us to be innovative by diversifying how our talents are used. With our knowledge of forming metals, laser cutting, and welding, we continue to explore the possibilities to help improve other areas of manufacturing on the SLS Program.

## Describe future endeavors for your small business with NASA and/or the Federal Government.

With the new exposure we are receiving on the SLS Program we look forward to expanding our opportunities with Aerojet Rocketdyne, NASA, and others in the aerospace industry.





We use unique materials to stamp lightweight components that reduce costs without sacrificing strength.

### 3-Dimensional Services Group

2547 Product Drive  
Rochester Hills, MI 48309

*Socioeconomic Category:* Small Business

T: 248-852-1333 | F: 248-852-2110

[customers@3dimensional.com](mailto:customers@3dimensional.com)

[www.3dimensional.com](http://www.3dimensional.com)

Alan Peterson, President

T: 248-852-1333

[apeterson@3dimensional.com](mailto:apeterson@3dimensional.com)

Michael Brabandt, Senior Sales Engineer

T: 248-852-1333

[mbrabandt@3dimensional.com](mailto:mbrabandt@3dimensional.com)

## Tell us about your company's history and its capabilities.

Hales Engineering Company (HEC) was started in a garage in 1963 and is presently in the VIP Industrial Complex in western Camarillo, CA. We specialize in precision metal and materials fabrications in our weld and machine shops and have field crews for on-site fabrication and installation. One of our rush orders was to manufacture dummy engines for the Space Shuttle for structural support. The dummy engines made it possible to transport the Space Shuttle from Florida to its final destination using a modified Boeing 747.

Hales Engineering Company has had a 48-year supplier relationship with Aerojet Rocketdyne. Our goal has always been to make our customers' projects successful. We do this with the insight and expertise developed using state-of-the-art equipment and experienced, highly trained employees.



The ATK exit cone and shipping cover



Machine shop

## How many employees does your company have?

Hales Engineering Company has supported Aerojet Rocketdyne with as many as 44 employees, and presently works with 17 employees including certified welders, machinists, and engineers.

## How long have you supported the SLS Program?

Hales Engineering Company has worked with Aerojet Rocketdyne since the start of the Space Launch System Program.

## Describe what services or support you provided to the SLS Program.

Hales Engineering Company received NASA's Small Business Contractor Excellence Award FY 2014 in recognition of exemplary subcontracting support to Aerojet Rocketdyne under the Space Launch Systems engine contract. As required over the years, HEC has assisted Aerojet Rocketdyne in the support of various program test fixtures and tooling for the RS-25 Engine Program and RS-25 Restart Program.

We have participated in the Lithium-Ion Battery Program and the International Space Station Neutral Buoyance Program at the Houston Neutral Buoyancy Lab; we tested all sections of the ISS over a seven-year period, including assembly training for the ISS crews. We also have manufactured components for the Terminal High Altitude Area Defense Capability Program.

#### How has your business evolved or grown supporting the SLS Program?

Hales Engineering Company has spun off a Woman-Owned Small Business: Ducworks, Inc. in Logan, UT. This company works with the Space Launch System Program and the Orbital ATK Programs as well as a variety of diverse manufacturing and building services.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

Hales Engineering Company is positioning our business to join forces with Ducworks, Inc., a company that currently has 70 employees and over 80,000 square feet of manufacturing space.



The Ducworks compound

#### Hales Engineering Co., Inc.

18 Wood Road  
Camarillo, CA 93010

*Socioeconomic Category:* Small Disadvantaged Business

T: 805-484-2736 | F: 805-987-5590

Roy A. Hales, President

T: 805-484-2736

[rhales@haleseng.com](mailto:rhales@haleseng.com)



Hales Engineering headquarters



## Tell us about your company's history and its capabilities.

ICO RALLY was originally modeled as a supplier of electrical and electronic materials and components, with many products manufactured to custom specifications. In 2010, ICO RALLY began investigating potential markets underserved in the space, aerospace, and defense sectors. The result was a category of products and services they branded "S3," referring to Specialty and Security-Sensitive Products. Government agencies—specifically NASA—as well as prime contractors involved in programs requiring high-reliability products and classified support services are the focus of S3's vision. ICO RALLY's S3 program provides Electrical, Electronic, and Electromechanical (EEE) Parts Management; unique environmental controls; testing; screening; and any additional qualifications required. Counterfeit parts detection and avoidance is a critical element. Other capabilities include cable, harness, and electromechanical assembly.

## How many employees does your company have?

ICO RALLY has 45 employees at 3 locations throughout California. Our staff includes engineers with post-graduate degrees trained in the fields of mechanical engineering, industrial engineering, and materials science. Our cable technicians are routinely certified to NASA 8739 assembly and operational standards.

## How long have you supported the SLS Program?

ICO RALLY has supported the SLS Program since 2011. During that time, we have contributed to public support activities related to the program, including at the congressional level.

## Describe what services or support you provided to the SLS Program.

ICO RALLY supports Aerojet Rocketdyne with supply-chain management and inspection services for products



Edwina Cioffi, president of ICO RALLY, signed a 2-year Mentor-Protégé Agreement in December 2015.

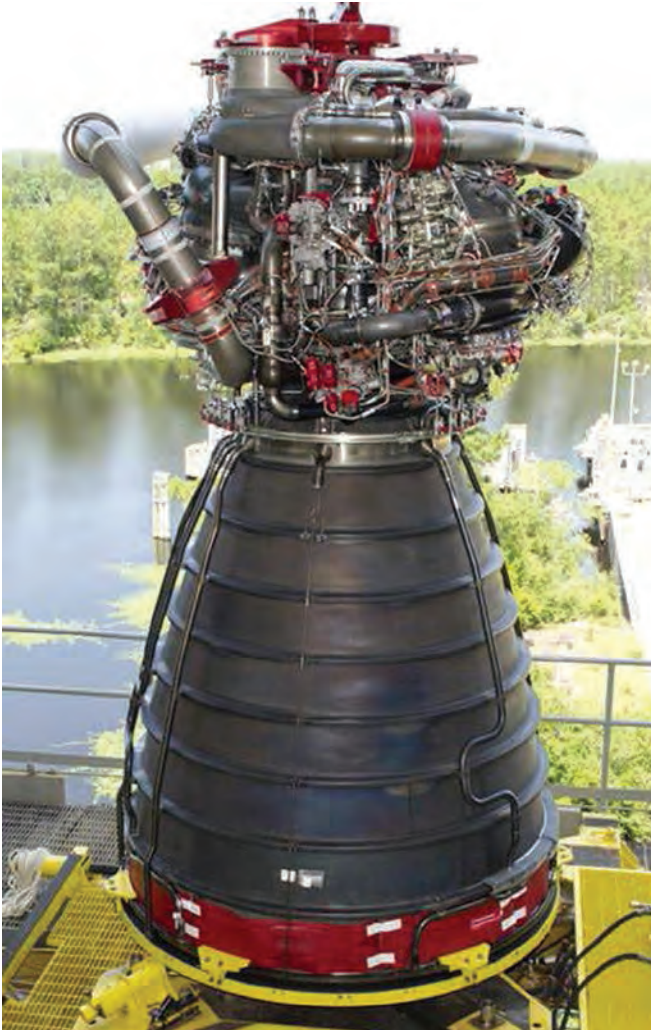
associated with the J-2X engine development, and most recently Aerojet Rocketdyne's SLS RS-25 core stage main engines.

## How has your business evolved or grown supporting the SLS Program?

ICO RALLY was awarded the Small Business Subcontractor Excellence Award from NASA's Marshall Space Flight Center for FY 2015. On October 6, 2015, a 24-month Mentor-Protégé Agreement was approved between ICO RALLY and Aerojet Rocketdyne. A fully secured 40,000-square-foot facility is under final preparations for opening in Q1 of FY 2016. Highlights of our new facility include electrostatic discharge (ESD)-compliant EEE parts storage and assembly areas and high-security surveillance systems. As a result of our involvement in SLS, additional Government prime contractors have expressed an interest in learning how ICO RALLY can support their specific program requirements.

## Describe future endeavors for your small business with NASA and/or the Federal Government.

Under the 24-month Mentor-Protégé Agreement, ICO RALLY will further develop technical capability in EEE parts supply



ICO RALLY supports Aerojet Rocketdyne with supply-chain management services for products associated with the J-2X engine development and, most recently, Aerojet Rocketdyne's SLS RS-25 core stage main engines.

management, obsolescence management, counterfeit detection, cable and electromechanical assembly, and various testing capabilities. ICO RALLY is currently being introduced into additional programs that require top secret security clearance for facilities and personnel. Through continued growth under the Federal HUBZone Program, ICO RALLY is committed to supporting socioeconomically disadvantaged areas through employment and skill-training opportunities.

#### ICO RALLY

2575 E. Bayshore Road

Palo Alto, CA 94303

*Socioeconomic Category:* Woman-Owned Small Business;  
Historically Underutilized Business Zone

T: 650-543-9428 | F: 650-543-9429

[www.icorally.com](http://www.icorally.com)

Edwina M. Cioffi, President

T: 650-543-9422

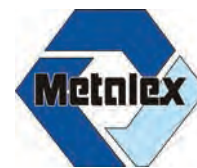
[ecioffi@icorally.com](mailto:ecioffi@icorally.com)

Brian Cioffi, Account Manager/Engineering

T: 650-543-9428

[bcioffi@icorally.com](mailto:bcioffi@icorally.com)

# Metalex Manufacturing, Inc.



## Tell us about your company's history and its capabilities.

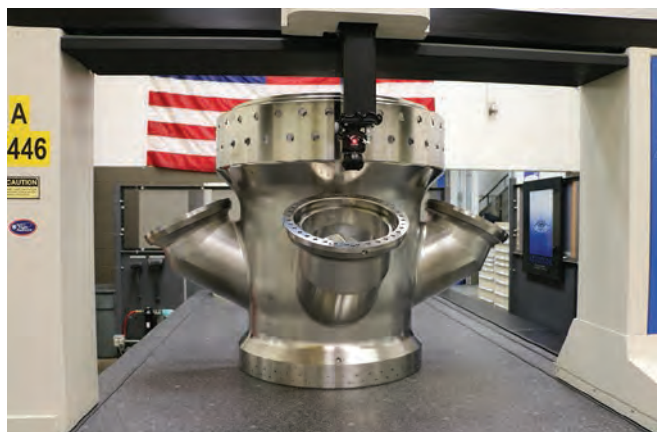
Metalex is a performance-driven, high quality, advanced technology contract machine shop. We specialize in the design, engineering, programming, fabrication, manufacture, and inspection of complex, close-tolerance parts, assemblies, and tooling.

We embrace the challenge of creating first-time projects and prototypes for high-tech needs as well as doing small production runs for commercial applications.

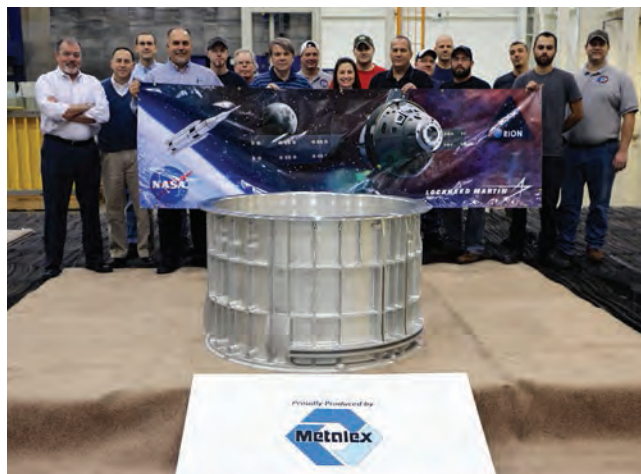
Started in 1971 by Werner Kummerle and his wife, Sue, and a few exceptional craftsmen, Metalex has grown to one of the nation's leading machine shops. Today with the next generation of leaders in place, Metalex continues to support and grow with our customers across a wide range of industries.

## How many employees does your company have?

Metalex's self-directed workforce has 125 team members, who have worked for the company for an average of 18 years. Our employees help our customers meet challenges, solve problems, and attain their goals, often under difficult cost and time constraints.



The final CMM inspection of the 4-port manifold at the Metalex facility



The Metalex Crew Tunnel Team

## How long have you supported the SLS Program?

We have been supplying parts to the SLS Program since 2008.

## Describe what services or support you provided to the SLS Program.

Metalex provides engineering, precision machining, fabrication, and assembly services for various parts used in the SLS Program, including the large titanium 4-port manifold that is central to the Launch Abort System (LAS) at the top of the rocket, and the crew tunnel—a fracture-critical part of the Orion crew capsule.

In addition, Metalex provides critical turbomachinery and structural parts for Aerojet Rocketdyne on the RL-10 and RS-25 engines.

## How has your business evolved or grown supporting the SLS Program?

Over the past 10 years, Metalex has continued to make significant capital investments in equipment and our workforce. These investments have increased our capabilities and expertise, which are necessary to support the current and future needs of the SLS Program.





The RS-25 Turbomachinery Stator

Specifically, Metalex has continued to enhance our project management expertise and capability to support the on-time and on-cost delivery of complex projects. This has led to the development of close relationships with industry partners required to support the SLS Program.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

Metalex remains engaged with NASA, the prime contractors, and the sub-tier contractor community to support various programs. We have demonstrated that as a small company we can make technology investments quickly to support the needs of a developing challenge. Metalex is committed to continue working closely with the NASA community to know when this is needed.

#### Metalex Manufacturing, Inc

5750 Cornell Road

Cincinnati, OH 45242

*Socioeconomic Category:* Small Disadvantaged Business,  
Veteran-Owned Small Business

T: 513-489-0507 | F: 513-489-1020

[sales@metalexmf.com](mailto:sales@metalexmf.com)

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#### Kevin Kummerle, CEO

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#### Jeff Bruns, Director of Sales

T: 513-489-0507

[brunsj@metalexmf.com](mailto:brunsj@metalexmf.com)

# Metalwerks PMD, Inc.



## Tell us about your company's history and its capabilities.

Metalwerks PMD, Inc. is a specialty metal melt shop and mill that was founded in 1998. Metalwerks leverages its in-house melt capabilities and technical knowledge to serve a diverse range of markets. This includes innovative research and development programs, such as its work for Aerojet Rocketdyne, as well as highly engineered products for medical, energy, and industrial applications.

Metalwerks is committed to quality and service. Through its unique melt technology and proprietary processes, Metalwerks produces some of the highest-purity, lowest-inclusion titanium and superalloys in the industry. It holds ISO9001:2008, AS9100 industrial and aerospace certifications. Metalwerks works with its customers to accelerate product-development timelines to overcome melting and processing challenges through out-of-the-box thinking and to foster genuine collaboration.



The Narloy Z ingot with the Metalwerks inscription



Metalwerks's newly rebuilt Processing Plant 1, featuring a flag pole made from a building support beam from the Processing Plant destroyed in a 2014 fire.

## How many employees does your company have?

Metalwerks grew from 21 to 29 full-time employees in 2015; its staff features a mix of welders, machinists, and melt-furnace operators, as well as metallurgists, engineers, and physicists. Metalwerks is proud to support the development of Aliquippa—an economically depressed region in western Pennsylvania.

## How long have you supported the SLS Program?

Metalwerks PMD has served Aerojet Rocketdyne and the SLS Program since 2010.

## Describe what services or support you provided to the SLS Program.

Metalwerks developed several alloy products for Aerojet's RS-25 rocket engines. For example, Metalwerks developed a new melting process for Narloy-Z, a copper-based alloy originally developed by NASA in the 1970s. This innovative process enables significantly higher final product yields and lower inclusions. Metalwerks reduced final product costs by nearly 50 percent.

Metalwerks also manufactured next-generation superalloys for Aerojet Rocketdyne's next-generation engines.

### How has your business evolved or grown supporting the SLS Program?

With any new product or process, there are many challenges that must be recognized and overcome. Aerojet Rocketdyne afforded Metalwerks the opportunity to apply its melt technology and experience to solve these challenges.

Aerojet Rocketdyne's continued support also helped contribute to 70 percent sales growth and 40 percent employment growth in 2015. The company is on track to become an even more important partner in 2016.

In the beginning of 2014, Metalwerks was struck by a major fire that started in an adjoining business. The fire destroyed Metalwerk's entire forging and processing facility. Metalwerks is grateful to Aerojet for its support and patience during these trying times. Metalwerks maintained full employment throughout the recovery process, and is now a stronger, more resilient business.

### Describe future endeavors for your small business with NASA and/or the Federal Government.

Metalwerks looks forward to growing with Aerojet Rocketdyne, ramping its production capabilities and staffing to meet NASA's future space flight needs.



The Metalwerks melt plant in Aliquippa, PA

Metalwerks also looks forward to continuing its work on Federally sponsored programs that encourage material science innovation and excellence.

We are proud of the successes we have had thus far and are excited to point at a NASA rocket propelling precious cargo into space and say, "I helped make that."

### Metalwerks PMD, Inc.

401 Steel Street  
Aliquippa, PA 15001

*Socioeconomic Category:* Veteran-Owned Small Business

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Michael Popper, President

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[mpopper@metalwerks.com](mailto:mpopper@metalwerks.com)



PRIME CONTRACTOR

**ORBITAL ATK**





## Message from Orbital ATK Vice President



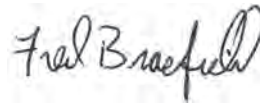
Orbital ATK is a proud member of NASA's Space Launch System Industry Team. We supply the solid rocket boosters to NASA's Marshall Space Flight Center to boost the SLS rocket on its Journey to Mars.

In the pursuit of manufacturing the world's most powerful rocket boosters, Orbital ATK engages with our small business partners from across the country. These small businesses provide materials and services that are vital to the success of our nation's space program. We count on their commitment to improving the design, quality, cost, and schedule of their products. Small businesses are an essential part of our business and impact every facet of our manufacturing processes.

Currently, Orbital ATK has procured over \$800 million of goods and services in support of the SLS program.

Almost 40 percent of the subcontracted dollars have been spent with our small business partners. Orbital ATK makes every effort to include small businesses when making sourcing decisions.

Orbital ATK supports our small businesses by providing them with community outreach, educational programs, and astronaut visits to highlight the small business in the local community. Engineering support and technical interchanges also help foster a bond of trust between companies. Orbital ATK's small business initiatives are vital to reaching our common goals.

A handwritten signature in black ink that reads "Fred Brasfield". The signature is fluid and cursive, with the first name "Fred" and last name "Brasfield" clearly legible.

**Fred Brasfield**  
Vice President, NASA Programs  
Orbital ATK

# AcuFast Aircraft Products

## ACUFAST AIRCRAFT PRODUCTS

### Tell us about your company's history and its capabilities.

AcuFast Aircraft Products was founded in 2006. Our company focuses on high strength, close tolerance aerospace fasteners.

From the beginning we brought in a select team of both technical and skilled manufacturing experts to form a company focused on high standards, integrity, and reliability. We are driven by knowledge, passion, and commitment to our customers. The business has grown continuously from 2006. AcuFast Aircraft Products expanded to a new 55,000 square foot location in late 2013. The new location now allows for high-strength forging and machining of Inconel, MP, H-11, A286 and other materials.

### How many employees does your company have?

AcuFast Aircraft Products has continually expanded our skilled labor and office staff since 2006. We now employ over 50 full-time staff members, including six full-time staff in our quality department.



Samples of aerospace fasteners from AcuFast Aircraft Products



The main manufacturing floor at AcuFast Aircraft Products

### How long have you supported the SLS Program?

AcuFast Aircraft Products has supported Orbital ATK's (formerly ATK Launch Systems) fastener requirements since 2007.

### Describe what services or support you provided to the SLS Program.

In early 2007, ATK Launch Systems and AcuFast were in discussions on the fastener demands of the ignition nozzle requirements of the redesigned solid rocket motor on NASA's Space Shuttle fleet. That same year, AcuFast began production runs of various high-strength precision fasteners that went into the thrust nozzle section. In past years we had provided forecast costs on fasteners for other ATK/NASA projects such as Orion, as well as other heavy lift concepts. As of 2016, AcuFast has produced over 40 different-sized fasteners for various ATK propulsion systems, including those for missile systems and space flight.

### How has your business evolved or grown supporting the SLS Program?

While AcuFast Aircraft Products has always been focused on high-strength close-tolerance aerospace fasteners, we feel



that we have benefited from the experience of knowing that our fasteners are apart of space flight and NASA's Space Launch System Program. Supporting NASA programs has heightened our sense of pride and precision. From a practical standpoint, it allowed management to continually look forward, grow, and expand our manufacturing departments. In 2016, we are looking forward to the completion of our new state-of-the-art quality lab. Collectively these types of improvements have benefited all of our customers.

**Describe future endeavors for your small business with NASA and/or the Federal Government.**

AcuFast Aircraft Products is prepared and ready to provide high-strength close-tolerance aerospace fasteners to the next generation of space flight applications.



Samples of aerospace fasteners from AcuFast Aircraft Products

With new platforms evolving in both unpiloted and piloted projects, we feel that our track record of manufacturing high-performance fasteners will be a very good fit for many of these projects. We are currently involved in pre-qualification and production awards of critical Federal Government fastener applications. Additionally, AcuFast Aircraft Products will continue to support Orbital ATK with their requirements and look forward to helping NASA's programs.

**AcuFast Aircraft Products**

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Sylmar, CA 91342

*Socioeconomic Category:* Small Business

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## Tell us about your company's history and its capabilities.

American Pacific has a proud 60-year history producing high quality, reliable products. Our headquarters and state-of-the-art manufacturing facilities are located in Southern Utah, with administrative support in Nevada.

We provide specialty chemicals used in solid rocket motors for space launch vehicles and national defense applications. We also produce clean fire-extinguishing agents for fire protection. Our products are designed to meet customer specifications and often must meet governmental and regulatory approvals.

Through technical and manufacturing expertise and a focus on customer service, we have achieved a reputation for quality, reliability, technical performance, and innovation. Given the mission-critical nature of our products, we have established longstanding strategic customer relationships, and we work collaboratively with customers to develop customized solutions that meet rigorous U.S. and international standards.

## How many employees does your company have?

At our Utah facilities we have 141 employees. We have 16 executive and administrative support employees in Nevada.

## How long have you supported the SLS Program?

Since inception of the SLS Program in 2011.

## Describe what services or support you provided to the SLS Program.

American Pacific is the sole manufacturer of rocket-grade ammonium perchlorate (AP) in North America. AP is a mission-critical product, as most solid rocket motors require AP to provide oxygen for the combustion process; this combustion, in turn, provides the energy to accelerate the rocket, missile, or launch vehicle. Our AP is the oxidizer used in the solid rocket motors for the SLS Program.



Ammonium perchlorate processing at American Pacific

## How has your business evolved or grown supporting the SLS Program?

Every program that utilizes solid rocket propellant has unique oxidizer requirements that are necessary to achieve the vital outcome essential for a successful launch. Our experienced technical and manufacturing teams worked together diligently to determine the unique production adjustments required to reliably produce SLS solid propellant oxidizer.

## Describe future endeavors for your small business with NASA and/or the Federal Government.

American Pacific is a proud supporter of all NASA missions that utilize solid rocket motors. It is our policy to reliably supply our customers with the highest quality products and services available. We are committed to continuous improvement with dedicated cross-functional teams, establishing a foundation of total quality commitment. With this reliability and commitment, we will endeavor to continue supporting NASA with their existing programs, and with future piloted and unpiloted space exploration, scientific discovery, and aeronautics research programs.



American Pacific's ammonium perchlorate manufacturing facility located in southern Utah

### American Pacific

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Cedar City, UT 84721

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# BST Systems, Inc.



## Tell us about your company's history and its capabilities.

BST Systems, Inc. was established in January 1983. It is an engineering-oriented, high-technology business. The company designs, develops, manufactures and tests high-energy silver-zinc cells, specialty cells, and complete batteries, as well as battery chargers and data acquisition systems equipment and Ground Support Equipment for NASA, the Department of Defense, major prime contractors and commercial companies. BST Systems products are used to power launch vehicle avionic systems and to launch vehicle range safety systems, airborne and aerospace targets; manned deep-diving undersea vehicles and small submarines; and unmanned undersea vehicles, underwater targets, decoys, and telecommunication equipment.

BST Systems is expanding its business line into lithium ion battery assembly. BST also has expertise and experience in the design and fabrication of harness and cable assemblies, including those for aerospace applications.

BST Systems is certified to AS9100 and ISO 9001-2000. BST personnel are trained and certified to IPC J-STD-001 for soldering and NASA 8739.4 for crimping and other harness and wiring operations.

## How many employees does your company have?

BST currently employs 40 people.

## How long have you supported the SLS Program?

BST has been under contract to Orbital ATK since December 2012.



BST Systems makes aerospace and submersible batteries, along with battery processing systems.

## Describe what services or support you provided to the SLS Program.

BST Systems is under contract to develop, qualify, and produce the avionics and command/destroy batteries installed on the SLS boosters. These batteries provide the energy required to power all flight electronics, as well as the booster command/destroy system.

## How has your business evolved or grown supporting the SLS Program?

BST's efforts in support of the SLS program have resulted in great engineering strides in the design of robust batteries for launch vehicle applications. The SLS Program also has allowed BST to increase our manufacturing capabilities so as to support future launch requirements.



A 1.5 Ah battery for powering GPS and command/destroy applications. This battery weighs less than 3.5 lbs.

**Describe future endeavors for your small business with NASA and/or the Federal Government.**

BST looks forward to continuing to supply aerospace-qualified batteries not only for our current customers, but for future customers and for future applications.

**BST Systems, Inc.**

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*Socioeconomic Category:* Small Business

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# General Plastics Manufacturing Company



## Tell us about your company's history and its capabilities.

General Plastics Manufacturing Company has been a leading innovator in the plastics industry for 75 years. We develop and manufacture rigid and flexible polyurethane foam products, which include our signature LAST-A-FOAM® brand series and build-to-print composite parts.

We are privileged to support engineers and design teams in many dynamic industries. Some of the industries we supply include aerospace, defense, and nuclear packaging. General Plastics is certified to both ISO 9001:2008 and AS9100C and meets the rigorous demands of a number of leading quality systems, including (but not limited to) NQA-1, Mil-I-45208A, and Boeing Company D6-82479.

## How many employees does your company have?

General Plastics Manufacturing Company currently employs about 200 employees in the Tacoma, WA, area.

## How long have you supported the SLS Program?

General Plastics Manufacturing Company has been providing parts to Orbital ATK for the Space Launch System since 2014.



Nozzle closure with General Plastics foam



Blocks of rigid foam made by General Plastics

## Describe what services or support you provided to the SLS Program.

General Plastics currently manufactures the polyurethane foam that is used in the nozzle closure billet of the solid rocket boosters provided by Orbital ATK to the Space Launch System. General Plastics's LAST-A-FOAM FR-4306 is an effective insulator and also is flame-retardant.

## How has your business evolved or grown supporting the SLS Program?

General Plastics continues to work with Orbital ATK to produce polyurethane foam to be used in the nozzle closures for the four main RS-25 engines of the Space Launch System. This particular project will involve another General Plastics product, the LAST-A-FOAM FR-7140, which is a flame-retardant, high-density polyurethane foam.



**Describe future endeavors for your small business with NASA and/or the Federal Government.**

In addition to the successful performance of LAST-A-FOAM in the nozzle closures for Orbital ATK in the various rockets it manufactures, General Plastics is exploring providing NASA and various Government agencies padded parts similar to what it produces for a commercial airplane manufacturer's flight deck. General Plastics's padded parts are made of flexible, self-extinguishing polyurethane foam. Formulated to be durable and to absorb large amounts of impact energy, it is an effective material for use in the spacecraft's crew module.

**General Plastics Manufacturing Company**

4910 Burlington Way

Tacoma, WA 98409

*Socioeconomic Category:* Small Business

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<https://twitter.com/generalplastics>  
<https://www.generalplastics.com/blog.html>

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# Major Tool & Machine



## Tell us about your company's history and its capabilities.

Major Tool & Machine (MTM) was founded in 1946, and provides precision machined components, fabrications, and assemblies. Now celebrating our 70th year in business, MTM occupies 600,000 square feet at our campus in Indianapolis, IN.

Our focus is on providing world-class, best-value manufacturing services to mission-critical markets. As a Small Business Administration-registered small business, we bring value through our turnkey approach, customer focus, and continuous commitment to quality.

MTM's extensive manufacturing facilities are often compared to those of Fortune 500 companies, yet our small business structure allows us to manufacture complex, highly-engineered, prototype-to-production hardware at cost-effective rates.

## How many employees does your company have?

MTM has 340 employees at our Indianapolis campus. They include 208 skilled labor personnel, such as engineers, machinists, welders, and quality assurance, and 132 planning, program management, technical support, and administrative personnel.



MTM has been recognized by NASA and their prime contractor for our hard work, dedication, and support in the manufacture of Orion hardware.



MTM's campus consists of five facilities encompassing approximately 600,000 square feet.

## How long have you supported the SLS Program?

MTM has supported the SLS Program since January 2011.

## Describe what services or support you provided to the SLS Program.

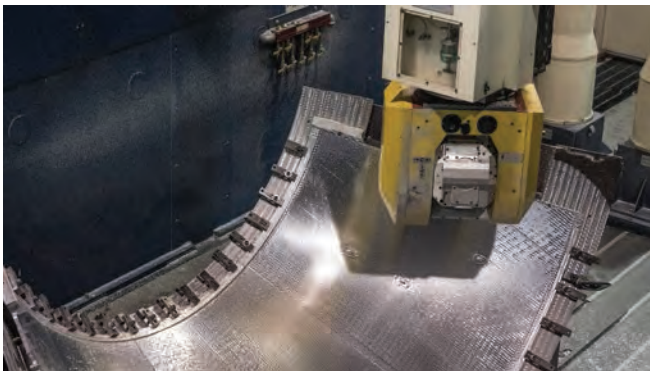
MTM provides concurrent engineering, precision machining, fabrication, and assembly services for the SLS Program.

## How has your business evolved or grown supporting the SLS Program?

MTM has expanded the depth and breadth of our manufacturing capabilities, and has developed core competencies that are applicable in furthering our value as a key supplier to NASA and the SLS Program.

Capital equipment investments in additional five-axis and high-velocity machining centers are directly attributable to MTM's support of the SLS Program.

Human capital investments in engineering, quality assurance, and skilled labor personnel to support the SLS Program are ongoing.



MTM has been recognized by NASA and their prime contractor for our hard work, dedication, and support in the manufacture of Orion hardware.

### Describe future endeavors for your small business with NASA and/or the Federal Government.

The capabilities and competencies applied throughout our engagement with the Aries 1X, Orion, and broader SLS activities are transferable to future aerospace and aeronautics programs.

MTM ownership, management, and employees all strongly believe in and actively support space, science and defense programs.

We collectively believe that our continued support, through attention to detail and the manufacture of quality products, will propel MTM to be the small business leader of mission-critical hardware for NASA as well as the Federal Government and their first-tier suppliers.

### Major Tool & Machine

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PRIME CONTRACTOR

# TELEDYNE BROWN ENGINEERING, INC.



## Message from Teledyne Brown Engineering (TBE) SLS Launch Vehicle Stage Adapter (LVSA) Director



Teledyne Brown Engineering is continuing over 60 years of tradition, providing innovative solutions and quality performance for our nation's space program by serving as the prime contractor to build the launch vehicle

stage adapter (LVSA) for NASA's next-generation launch vehicle, the Space Launch System (SLS). The company has provided full lifecycle engineering and prototyping solutions for every major NASA space initiative since Apollo.

LVSA, a critical element of the SLS, will connect the rocket's 27.5-foot diameter core stage and 16.4-foot diameter interim cryogenic propulsion stage (ICPS). In addition to providing structural support for launch and separation loads, LVSA will also protect the delicate electrical devices in the propulsion systems from the extreme conditions encountered in the challenging launch environment. Teledyne Brown Engineering is responsible for the design and fabrication of the LVSA, utilizing extensive experience and capabilities in the

manufacturing of high-tolerance, precision systems and components.

Teledyne Brown Engineering believes in the strength and capabilities that small businesses contribute, and the company has formed a robust program to continually seek out qualified companies for potential partnering and strategic alliances.

Teledyne Brown Engineering has teamed with small business partners on the LVSA program that possess advanced technical expertise, strong values, rich past performance, and fervent commitment to safety to help NASA achieve its strategic goals and Mission success.

A handwritten signature in black ink that reads "Reggie Spivey".

**Reggie Spivey**  
SLS LVSA Director  
Teledyne Brown Engineering



# AMRO Fabricating Corporation



## Tell us about your company's history and its capabilities.

In August 1977, Michael K. and Thora A. Riley founded AMRO Fabricating Corporation—known as AMRO (which stands for A Michael Riley Operation). The metal fabricating facility opened its doors with six employees in an 8,000 square foot building in South El Monte, CA. AMRO began venturing into the aerospace industry in late 1979, with the fabrication of a stair case platform for TRW Systems. AMRO's customer base continued to grow and by December 1980 the company had approximately 25 employees and had upgraded to a much larger facility in South El Monte.

In 1986, AMRO was awarded an Isogrid Panel Contract by McDonnell Douglas to support the Titan Program. The contract gave AMRO the opportunity to specialize in the bump forming process of the isogrid forming of the barrel panels for the external tank of the Space Shuttle. AMRO offers flight-heritage isogrid and orthogrid metallic structures used for spacecraft and launch vehicle primary structures. Some of our capabilities include high-speed machining, brake forming, welding, assembly, installations, laser tracking, and heat aging. AMRO is also proud to participate in the NASA Mentor-Protégé Program with The Boeing Company.

## How many employees does your company have?

AMRO currently has 220 employees.

## How long have you supported the SLS Program?

AMRO has been involved with SLS for approximately six years. Our early support started with bidding some of the long lead friction-stir weld tools and weld coupons. Then came the early barrel panel engineering, manufacturing and development efforts, and production contracts.

Currently we are manufacturing the launch vehicle stage adapters (LVSA) for Teledyne Brown Engineering.



AMRO's first SLS LH2 development panel

## Describe what services or support you provided to the SLS Program.

AMRO numerical control (NC) machines various panels, including precision form panels, and accurately heat-ages, processing complete barrel panels and conical LVSA panels for the SLS Program.

Every barrel panel that makes up the core stage of the SLS Launch Vehicle is made at the AMRO Fabricating Corporation.

## How has your business evolved or grown supporting the SLS Program?

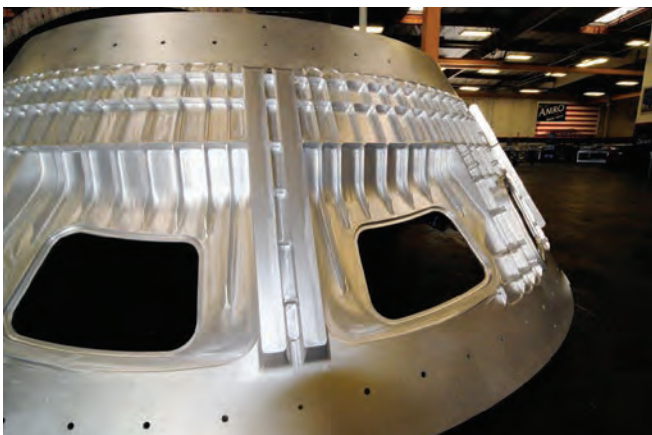
As a result of its significant role in the SLS Program, AMRO is becoming internationally known for its expertise and propriety processes. We have invested back into the company and expanded capacities through equipment and facility acquisitions.

The SLS Program has certainly challenged AMRO's process limitations and has fostered a higher degree of technical know-how and refinement.





The photo shows all the SLS Hardware AMRO has produced on the contract.



This is AMRO's first 120-degree Orion window panel.

### Describe future endeavors for your small business with NASA and/or the Federal Government.

AMRO's future will include transforming to a tier one supplier and supporting NASA and the Federal Government. This means that we will be providing full-up top assemblies to our customers utilizing modern technologies (friction-stir welding, additive manufacturing, test and qualification). Our goal is to provide low-cost solutions to our customers and provide them with a competitive position. The continued downward pricing pressures and budget cuts are very challenging. Moving more of the complex assemblies to qualified small businesses presents a logical way to stay ahead of budget challenges.

### AMRO Fabricating Corporation

1430 Adelia Avenue

South El Monte, CA 91733

*Socioeconomic Categories:* Woman-Owned Small Business, Small Disadvantaged Business

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[www.amrofab.com](http://www.amrofab.com)

[https://www.facebook.com/pages/](https://www.facebook.com/pages/AMRO-Fabricating-Corporation/286141454788641)

[AMRO-Fabricating-Corporation/286141454788641](https://www.facebook.com/pages/AMRO-Fabricating-Corporation/286141454788641)

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[AMRO Fabricating](#)

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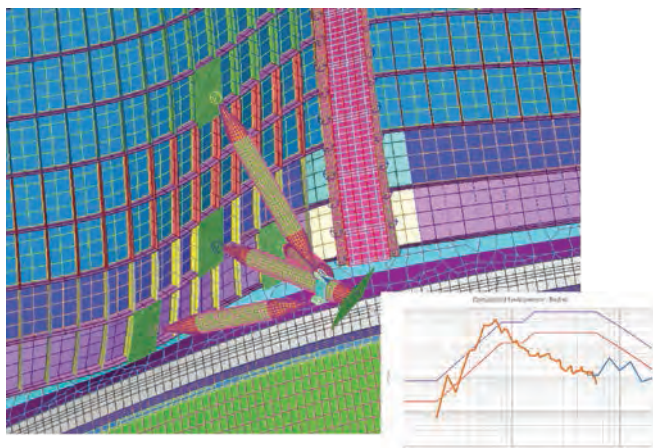
## Tell us about your company's history and its capabilities.

Founded in 1997 and headquartered in Huntsville, AL, CRM Solutions, Inc. is a small business that provides engineering services in support of NASA's and the Department of Defense's aerospace systems. CRM began with a group of computational fluid dynamics (CFD) subject-matter experts, all of whom had strong backgrounds in commercial CFD code development. CRM helped pioneer computational studies for multiple moving-body problems, such as stage and separation events. CRM maintains a 650-node computing cluster for dedicated in-house computing.

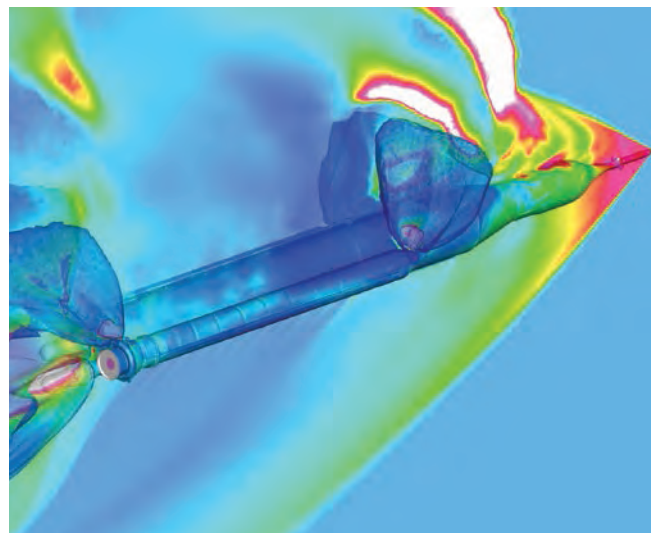
In the years since its inception, the company's expertise has evolved to encompass almost all of the technical areas that are required for launch vehicle and missile engineering design and analysis. In addition to expertise in modeling both internal and external flow with CFD, capabilities include vibro-acoustics, structural stress, fatigue and fracture prediction, thermal analysis, guidance, navigation and control, and debris transport/impact modeling.

## How many employees does your company have?

CRM currently has 11 full-time employees. All of the company's engineers have advanced degrees in aerospace or mechanical engineering, with 30 percent having a PhD and 70 percent holding a Masters. The tight-knit group is able



Maximum random vibration environments eradicated with FEA and SEA.



A CFD simulation of the SRB booster separation event

to perform duties across the engineering disciplines to accommodate seamless and efficient analysis, as well as the design and management of launch vehicle and defensive systems. Employees have an average of at least 20 years of experience, which ensures that, subject-matter experts across all disciplines can ensure quality of product.

## How long have you supported the SLS Program?

CRM began providing support as a partner to prime contractor Teledyne Brown Engineering in February 2014. CRM supplies a team of diverse Engineers working full time across a broad spectrum of Engineering specialties.

## Describe what services or support you provided to the SLS Program.

CRM Solutions provides system analysis for the launch vehicle stage adapter (LVSA). Internal thermal environments are predicted inside the LVSA shared volume using computational fluid dynamics (CFD) to determine 3D multispecies fluid flow as heated nitrogen exits from two internal purge rings to mix with the internal volume. Results are coupled with thermal analysis to predict internal volumetric and surface temperatures. Additionally, hazardous gases are modeled to ensure flammability limits are not exceeded. CFD is further utilized to size the LVSA vents for on-pad

and ascent performance. Thermal environments are predicted both internally and externally from rollout through LVSA separation. External acoustic environments are used to determine the random vibration loading during liftoff and ascent. Temperatures and forces coupled with external aerodynamic loading are then utilized to determine primary and secondary structural stress and fatigue to guide the design process of the LVSA.

Additionally, transmission loss due to fluid-structure interaction is computed and mitigating solutions such as acoustic blankets are assessed to reduce internal noise to acceptable levels. Debris impact analysis is performed to ensure structural integrity is maintained.



Buckling analysis of the LVSA

#### How has your business evolved or grown supporting the SLS Program?

Providing engineering support for the SLS with partner Teledyne Brown directly resulted in a 60 percent growth of our company. Expertise was strengthened in the areas of vibro-acoustics and thermal and structural analysis. The complexity associated with the system analysis of the LVSA and SLS shared volume between core and upper stage has ensured that our employees are using state-of-the-art analysis tools across the disciplines needed for launch vehicle design and analysis. Taking advantage of the latest technology, combined with high-speed computing, allows a fidelity of analysis to be obtained, surpassing the accuracy used for launch vehicles in the past. An example is solving multispecies computational fluid dynamics problems for the internal shared volume on meshes that have cell counts in the hundreds of millions. Convective heat transfer terms from the CFD simulations are then used as input into thermal analysis software to allow accurate internal thermal environment

predictions. These same CFD solutions are utilized to track spatial distribution of hazardous gases and design the LVSA internal purge ring that controls the thermal environment and provides flow mixing. Additionally, these simulations assist in areas such as determination of on-pad icing, vent design, and prediction of ascent environments.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

Through its efforts on SLS, CRM Solutions has developed a small, efficient team of experts capable of providing high-fidelity analysis of launch vehicles across a broad spectrum of engineering disciplines. It is hoped that this translates to future partnering of CRM with other companies in the launch vehicle community in support of NASA and space exploration. Additionally, the skills utilized for SLS are directly applicable to the problems of interest to DOD, and further expansion into the area of missile, rotorcraft, and aircraft analysis and design is a long-term goal.

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# Davis Strategic Innovations, Inc. (DSI)



## Tell us about your company's history and its capabilities.

DSI is a premier engineering support company dedicated to engineering, science, analysis, research, and education. The company is a Service-Disabled Veteran-Owned Small Business that focuses on the technical support of complex customer requirements in the areas of safety, environmental, engineering, strategic planning, program management, and medical/public health. Since 2007, DSI has provided technical support to NASA in numerous engineering capacities such as safety, propulsion, stress, thermal, design, mechanical, hardware, and guidance and navigation. At the Kennedy Space Center (KSC), DSI performs safety engineering and analysis, reliability, systems safety, and operations safety support through the S-MASS II contract. At Marshall Space Flight Center (MSFC), DSI has three technical support contracts. In 2009, DSI received a MSFC Small Business Subcontractor Excellence Award, presented for the company's exemplary support to NASA.

## How many employees does your company have?

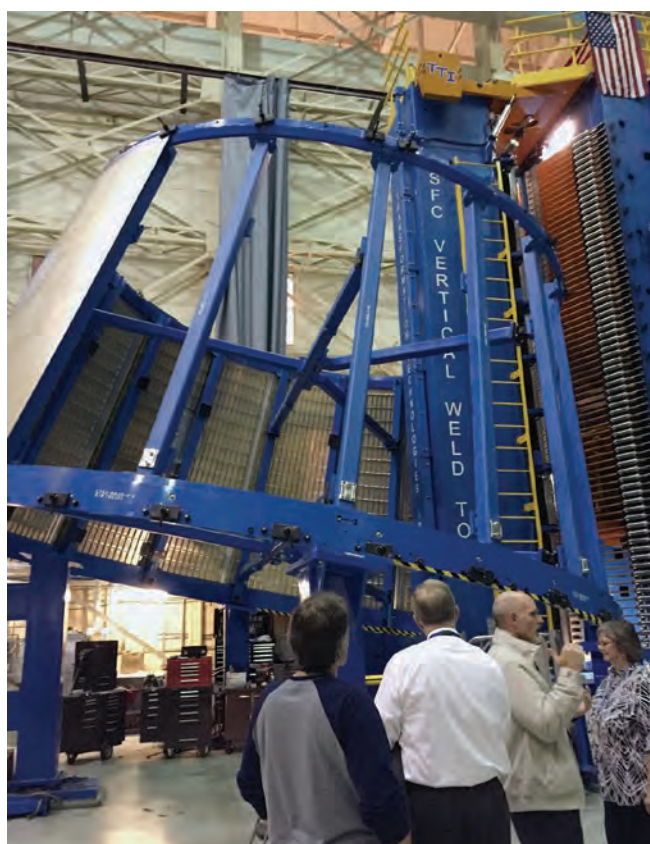
DSI has 40 employees.

## How long have you supported the SLS Program?

DSI has supported the SLS Program since its inception and is proud to provide engineering support to NASA's Constellation Program as well.

## Describe what services or support you provided to the SLS Program.

DSI supports the NASA MSFC Space Launch System Program Office on the launch vehicle stage adapter (LVSA) contract. The LVSA is part of the evolvable SLS configuration. DSI also supports the Spacecraft and Payload Integration and Evolution (SPIE) Office, which is an integral



DSI's Dr. Jim Davis and TBE's Greg Lawson on an LVSA machining tour.

part of the Space Launch System, and is responsible for the management, planning, and integration of spacecraft, including the Orion Multi-Purpose Crew Vehicle (MPCV) and payloads in support of the SLS vehicle. The DSI Team provided extensive Stress Engineering and Finite Element Analysis support, completed the Safety Plan in accordance with SLS-RQMT-015 and Program Hazard Analysis Requirements, completed the LVSA Safety and Mission Assurance (SMA) Plan in multiple volumes, provided the Reliability and Maintainability Plan as well as the Failure Modes and Effects Analysis and Critical Items List Plans.

#### How has your business evolved or grown supporting the SLS Program?

Many of our capabilities in Stress Engineering and Finite Element Analysis and Reliability and Maintainability Engineering have become more robust due to the critical nature of the SLS project and its complexities. Joining the SLS team enabled DSI to continue supporting the NASA's historic and scientific missions and contributing to the United States's prominence in space.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

NASA is a unique and exciting customer to support—the Agency's aeronautic, space, scientific, and exploratory mission pushes the envelope and continues to be a source of national identity and global recognition. DSI endeavors to increase support to NASA in technical engineering across a greater number of Centers. The company also wants to engage in an increased number of NASA projects, through subcontracting to outstanding primes and, where a business case supports, by pursuing prime engineering support opportunities.

#### Davis Strategic Innovations, Inc. (DSI)

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# Emerald City Initiatives, Inc.



## Tell us about your company's history and its capabilities.

Emerald City Initiatives, Inc. (ECI), Inc. is a woman-owned engineering and technical services firm founded in 2009. It is focused on supporting NASA and other Federal agencies and their contractors, as well as commercial entities. ECI's core competencies and capabilities include system engineering, mechanical engineering, electrical engineering, hardware and avionics/software integration, payload integration, project and systems management, product design and development, computer system design and analysis, system administration, risk management, manufacturing oversight/support, supplier quality surveillance, and supplier technical insight.

## How many employees does your company have?

ECI, Inc. currently has eight talented professionals actively working on the SLS launch vehicle stage adapter (LVSA) for Teledyne Brown Engineering, the core stage element project office, and the SLS Level 2 Integrated Avionics System (IAS) as well as supporting the company infrastructure and day-to-day business activities.



Tamra Ozbolt, ECI President and CEO, accepting the 2015 Small Business Subcontractor Excellence certificate.



ECI personnel and support staff working the SLS LVSA.

## How long have you supported the SLS Program?

ECI, Inc. has supported the SLS Program since the beginning of our collaboration with Teledyne on the LVSA Delivery Order (DO) proposal, which was awarded under the Engineering Solutions and Prototyping (ESP) contract on February 3, 2014. ECI began work immediately after award to contribute to the rapid start and to help meet the schedule requirements of the SLS.

## Describe what services or support you provided to the SLS Program.

ECI, Inc. supports the SLS Program under the LVSA DO with technical leadership, systems engineering, project management support, mechanical and electrical design for flight hardware and ground support equipment (GSE), and electrical integration/analysis. To date, ECI personnel have produced numerous models and drawings of the structure, electrical cables, and ground support equipment, which lead to the successful Critical Design Review 1 (CDR1) and CDR2. ECI developed a streamlined process for performing Outer Mold Line model creation, which enabled a rapid turn-around and was subsequently implemented across our design team. Our team developed models and drawings for



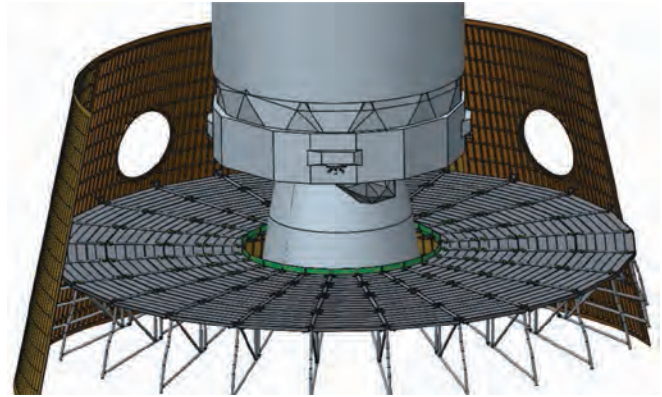
camera and umbilical mounts, access platforms, electrical panels and cables, and instrumentation layout. ECI has identified improvements that helped to meet the tight schedule for design development through integration of data into the SLS models.

#### How has your business evolved or grown supporting the SLS Program?

Since our initial involvement on the LVSA DO, ECI has expanded its role in supporting SLS Program. We have provided both technical and programmatic support to the core stage element and have added personnel to provide technical and leadership support to the SLS Level 2 IAS discipline. ECI has maximized the application of our personnel and capabilities to provide exceptional technical support and engineering deliverables for the SLS Program. In 2015, Teledyne Brown Engineering and Marshall Space Flight Center presented ECI with a Subcontractor Excellence Certificate for our SLS support. Our goal is to continue to provide the level of services that have been recognized for their excellence by NASA and our industry clients.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

ECI continues to provide support to the SLS Program by continuing our exceptional technical and programmatic support, including Exploration Mission 1 (EM-1) and the Exploration Upper Stage (EUS) mission. ECI will continue to collaborate with NASA, their prime contractors, and other commercial entities by applying our core capabilities to contribute to the success of SLS.



This illustration shows the main internal access platforms for personnel to stand on while installing the cryogenic stage in the Vehicle Assembly Building at Kennedy Space Center.

#### **Emerald City Initiatives, Inc**

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# West Cobb Engineering & Tool Co., Inc.



## Tell us about your company's history and its capabilities.

West Cobb Engineering (WCE) was started in 1987 by Wade Terrell. Since then, WCE has grown from 1 employee to 33. Today it operates in a 50,000 square-foot facility. WCE offers a broad range of tooling capabilities, design and build, 5-axis machining, jigs and fixtures, metal fabrication of large support structures, laser scanning, and coordinate-measuring machine (CMM) inspection. WCE has one of the largest 5-axis machines and CMMs in the southeastern United States. In 2012, WCE expanded its capabilities to include composite manufacturing by creating West Cobb Composites, LLC.

## How many employees does your company have?

WCE currently employs 33 people.

## How long have you supported the SLS Program?

WCE has supported the SLS Program for 2 years.

## Describe what services or support you provided to the SLS Program.

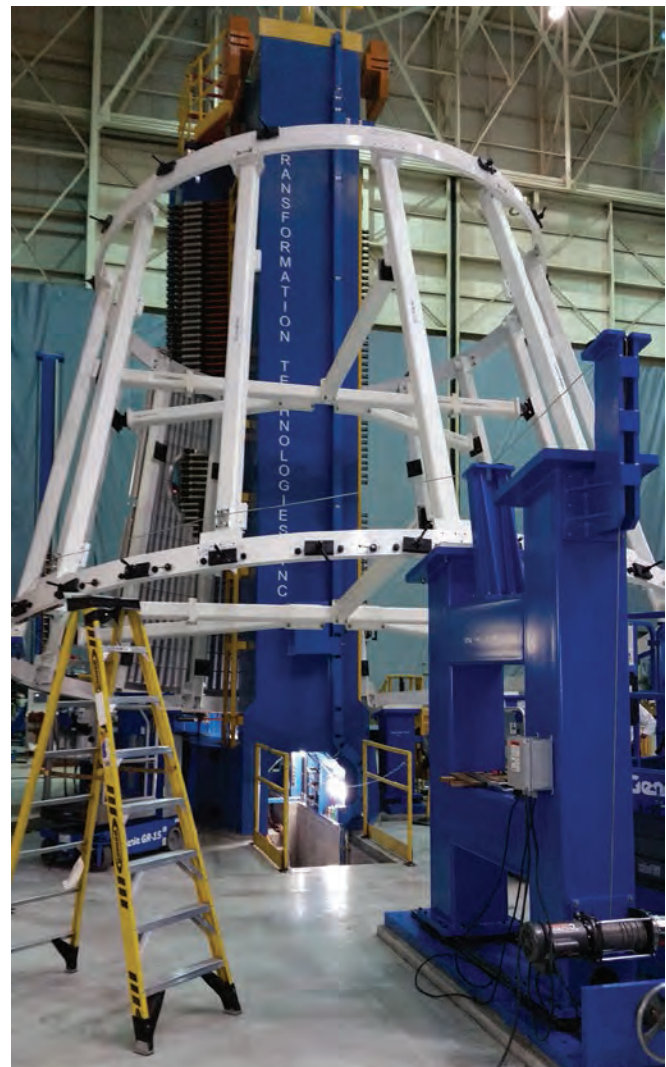
WCE was contracted by Teledyne Brown Engineering to manufacture the launch vehicle stage adapter (LVSA) pedestals, which locate and hold the cone section of the launch vehicle. The assembly utilized friction-stir welding. The finished assembly currently resides at the NASA Marshall Space Flight Center (MSFC) in Huntsville, AL.

Recently, WCE built a 25-foot-diameter radial locating drill jig and fixture, which will be used for the construction of the mate joint that separates prior to going into orbit.

Both of the projects described above utilized the large machining and inspection capabilities of WCE.



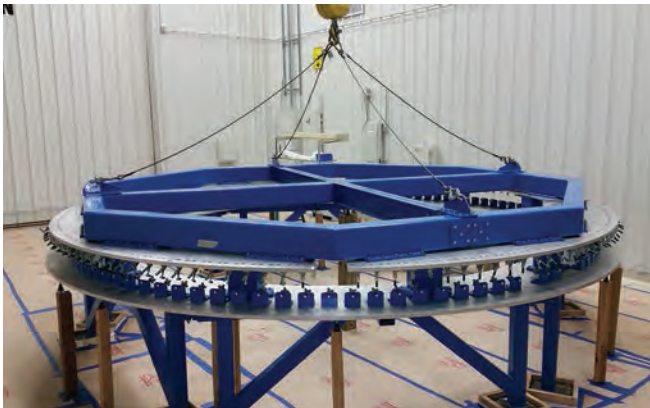
Completed LVSA pedestals preparing to ship



LVSA pedestals in use at NASA MSFC facility, Huntsville AL



Completed radial locating drill jig and fixture preparing to ship



Completed radial locating drill jig and fixture on site at Teledyne Brown Engineering

### How has your business evolved or grown supporting the SLS Program?

The SLS Program represents only a small portion of WCE business. However, during production of the aforementioned programs each and every employee at WCE had a great sense of pride being part of this lucrative program. WCE feels very honored to be part of these programs and looks forward with anticipation to the next project.

### Describe future endeavors for your small business with NASA and/or the Federal Government.

In 2015, WCE received the honor of being invited to NASA MSFC to give a PowerPoint presentation to the NASA prime contractors and the Office of Small Business Programs that outlined our capabilities.

WCE is a proud charter member of the Paulding Aerospace Alliance. The organization was formed by American aerospace companies to collectively offer major prime contractors an opportunity to bid and place work with small companies that can work together. The alliance offers members a larger span of expertise than would normally be available from individual smaller organizations.

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PRIME CONTRACTOR

# THE BOEING COMPANY





# Message from The Boeing Company Vice President



Across the country, small and diverse businesses are building the systems necessary for powering humankind into deep space by launching larger payloads farther into our solar system, and faster than ever

before possible, to enable exploration, science, and security missions.

Building America's next great rocket requires not only technical expertise, but also the long-term commitment of our partners, who understand that achieving Earth independence depends on setting a course and staying the course. Our Space Launch System supplier team has steadfastly supported our commitment to building a better tomorrow—today.

NASA has charged this team with a complex undertaking, requiring extensive resources to design, develop, produce, and test a new capability that will enable a wide variety of exploration and science missions. NASA is relying on our dynamic core stage supply chain, which spans over 250 small businesses in more than 40 states.

We need the flexibility, adaptability, and expertise of our small and diverse businesses, from which will spring another generation of industry leaders. We recruit these companies, guiding them to be the best NASA partner they can be and integrating them into our innovation strategy. Through targeted outreach, formal mentoring programs, and collaboration strategies, Boeing aims not only to continuously improve the SLS Program, but also to ultimately enhance the industrial base.

Boeing relies upon small businesses to push the envelope in manufacturing, engineering, program support, procurement services, and much more, finding creative ways to offer opportunities to work with our first-tier suppliers.

Space exploration requires a strong, experienced team, so investing in the next generation of suppliers is not only smart; it's absolutely necessary. Our smaller suppliers will grow with experience to be peers in an industry that is changing the world through science, technology, and discovery. Simply put, we can't succeed without small businesses.

Across the country, workers are building the Space Launch System, Orion, and ground-based systems necessary for launch, even as scientists, researchers, and engineers design the next steps that will enable Earth independence for humankind. Students, who need so much to be inspired now, are committing themselves to studying the tough curriculum necessary to achieve their dreams of living and working in space, or in the service of space-based research and discovery.

Together, the work we do will carry us boldly toward a better future for humankind.

A handwritten signature in dark ink, appearing to read "John P. Shannon". The signature is fluid and cursive, with a large initial "J".

**John Shannon**

Vice President and Program Manager of the  
Space Launch System Program  
The Boeing Company

# Futuramic Tool & Engineering



## Tell us about your company's history and its capabilities.

Futuramic has been serving the automotive and aerospace tooling industry for over 60 years. Founded in 1955 by Bill Warner, Futuramic is a privately held small business that is still owned by the Warner family. Futuramic is committed to their associates and customers by reinvesting back into the company each year. We treat our customers as partners. Our customers' success is our success.

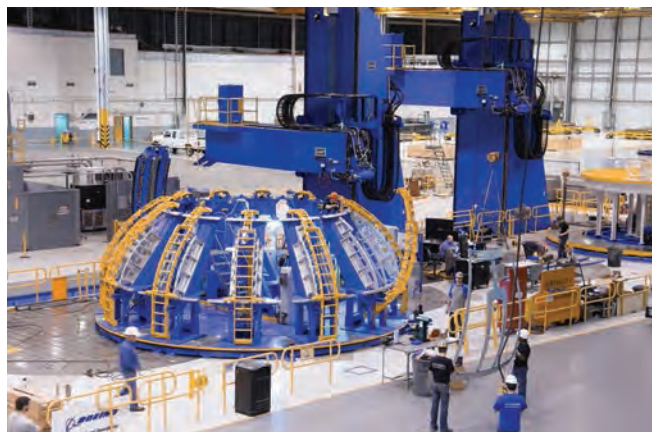
Futuramic offers excellence in engineering, fabrication, manufacturing, and installation. Futuramic houses one of the largest five-axis mills in the United States (it measures 240' x 26' x 9'). The company operates with 14 five-axis mills and a host of supporting four- and three-axis machines. We currently have 590,000 square feet of manufacturing and assembly space and 60,000 square feet of engineering space.

## How many employees does your company have?

Futuramic employs 24 engineers and 165 manufacturing personnel.

## How long have you supported the SLS Program?

Futuramic began work on its first major SLS tool in 2012. Concept and engineering on the Gore Weld Tool began in July 2012, and final installation of this state-of-the-art



stir-weld tool was completed in May 2013. Since then, Futuramic has engineered, designed, built, and installed many tools for the SLS Program. We look forward to supplying other tools that are currently in process. Futuramic also supplies flight hardware to support the SLS Program.

## Describe what services or support you provided to the SLS Program.

Futuramic is a full-service engineering, design, build, and installation company. We have supported the SLS Program with many types of tooling. We have supplied many sizes and types of tools—from small-drill jigs that drill five holes to full-assembly jigs that build engine sections of the rocket. We have also supplied state-of-the-art friction-stir weld tools and the tooling to weld the segmented ring. We have a fully self-sufficient working mobile machine shop to aid in the installation of the tooling we supply.

## How has your business evolved or grown supporting the SLS Program?

Since our first SLS project we have acquired 300,000 square feet of manufacturing facility and supporting equipment. We have been able to bring on 95 additional associates.







### Futuramic Tool & Engineering

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### Describe future endeavors for your small business with NASA and/or the Federal Government.

Futuramic shares the vision and excitement of space travel and feels fortunate to be a part of it. It is our goal to continue with and constantly strengthen our relationships with both Boeing and NASA and to be considered a partner in the success of the SLS Space Program and future endeavors.

## Tell us about your company's history and its capabilities.

Geocent was incorporated in December of 1992, when it was known as Diamond Data Systems (DDS). The company began with two employees and had a single client, Ochsner Hospital. The company originally only offered software development services, but quickly expanded its services by also providing network engineering and help-desk services.

In 2008, DDS merged with Prescient Technologies to form Geocent. Today the company has well over 200 employees and is growing rapidly. Its client base includes commercial, state, and Federal clients in industries that include aerospace and defense, homeland security, banking, health care, education, social services, marine transportation, oil and gas exploration, and manufacturing. Geocent's service offerings have also matured and expanded beyond information technology to encompass aerospace and systems engineering, manufacturing engineering, 3D modeling and simulation tied to 3D laser scanning, operations and technical support, software and systems engineering, network engineering and infrastructure support, cloud support services, and technology consulting.

## How many employees does your company have?

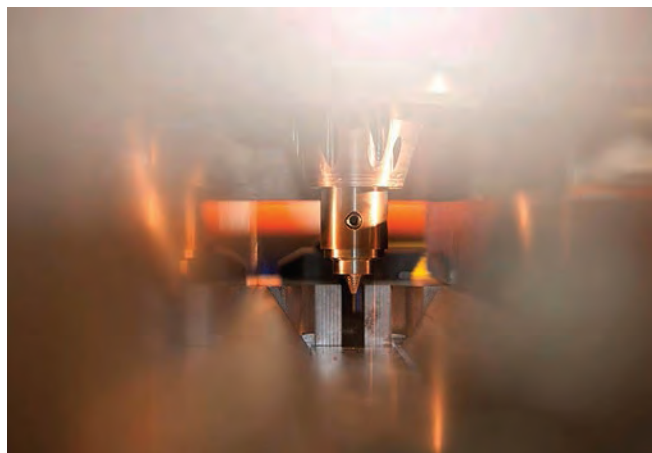
Geocent has approximately 225 employees and approximately 25 subcontractors. Geocent anticipates adding 30 new employees in the first quarter of 2016.

## How long have you supported the SLS Program?

Geocent began supporting the SLS Program in August 2012.

## Describe what services or support you provided to the SLS Program.

- Propulsion, materials engineering, 3D modeling and simulation (including 3D laser scanning), manufacturing engineering, personnel training and certification management (welding, electrical assembly, mechanical assembly and thermal protection systems)



Geocent has expanded its engineering capabilities into friction-stir welding (FSW). FSW was developed in the United Kingdom in the early 1990s, and is used in the aerospace and auto industries.

- Technical writing and editing, facility management
- Production area activation/readiness
- Production process animation, demonstration, and analysis
- SLS simulation test article mass simulator fabrication/assembly
- Avionics systems engineering, space vehicle systems engineering
- Structural engineering
- Hardware ground test
- Tooling and ground handling engineering
- Liquid rocket propulsion systems engineering
- Metallurgical and materials engineering, weld tool and material integration
- System engineering solutions

## How has your business evolved or grown supporting the SLS Program?

The SLS Program has allowed Geocent to substantially expand its presence in Huntsville, AL, and to grow new skill sets that are applicable to other Geocent clients and future potential clients. The growth and stability provided by the SLS Program has allowed Geocent to mature as a company and to attract senior executive talent in a way that would



Geocent is a leading technology company sought after by clients, employees, and partners for consistently delivering the right solution.

not have been possible otherwise. In turn, this has allowed Geocent to have a positive impact on our communities in Alabama, Mississippi, and Louisiana, with particular emphasis on inspiring students to look at STEM-related fields.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

Using the base of skills developed from our SLS, defense and state work, Geocent will continue to pursue new work both at MSFC and other NASA Centers. The company also has reached across to pursue contracts with other agencies and prime contractors under the Army at Redstone Arsenal who utilize many of these same skill sets. Geocent won four new prime contracts with the Department of Homeland Security, has brought new skills to the USDA National Finance Center (one of the largest Federal shared services centers in the country), and is in the process of preparing to bid new contracts with the Army, Navy, USDA, Veterans Administration, and various other agencies.

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# Kord Technologies, Inc.



## Tell us about your company's history and its capabilities.

Kord Technologies, Inc., headquartered in Huntsville, AL, is a Woman-Owned Small Business that provides engineering, information technology, training, and programmatic support services to defense and civilian agencies. Founded in 2008, Kord employs more than 85 personnel in Huntsville; Mobile, AL; Fort Bragg, NC; Aberdeen, MD; and the National Capital Region supporting the U.S. Army, NASA, Missile Defense Agency, U.S. Air Force, and the Department of Homeland Security. Kord offers a wide range of services including systems engineering, installation management, aviation training, information technology, threat systems analysis, computational fluid dynamics, software engineering, scientific research and development, optical engineering, and program management.

## How many employees does your company have?

Kord currently has 87 employees.



The 2016 honoree, Paul Protos, is the Lead Tool Engineer for the Engine Section Assembly and Integration on the SLS program. Kord, a Woman-Owned Small Business headquartered in Huntsville, AL, is also a Boeing Silver and Gold Supplier, and has been since 2012.



The 2015 honoree was Charles Krampert. Krampert is the Responsible Engineer for the Space Launch System (SLS) Engine Section subsystem tubing.

## How long have you supported the SLS Program?

Kord has supported the SLS Program since February 2010.

## Describe what services or support you provided to the SLS Program.

Kord provides engineering and business services in support of NASA's SLS Program. Our team of engineers and analysts deliver product design, analysis, manufacturing, and tooling expertise to Boeing in support of the SLS core stage.

## How has your business evolved or grown supporting the SLS Program?

Kord's support of the program has expanded from business operations in 2010 to include a team of designers, analysts (stress, thermal, and CFD), propulsion subject-matter experts, manufacturing engineers, and friction-stir welding tooling experts. Two of Kord's team members have been recognized with NASA's Space Flight Awareness Award for their contributions in the design and manufacture of the core stage.

**Describe future endeavors for your small business with NASA and/or the Federal Government.**

Kord is positioned to grow significantly over the next few years, having recently won five prime multiyear contracts with combined ceiling values of well over \$200M.

**Kord Technologies, Inc.**

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## Tell us about your company's history and its capabilities.

Since 1951, Valcor Engineering has designed and manufactured fluid control valves and related components for some of the most demanding applications. Our involvement in space flight dates back to the Gemini, Apollo, and Lunar Lander programs. Valcor specializes in solenoid driven fluid control devices, as well as check valves, regulators, latching valves, service valves, and manifolds. With a library of more than 18,000 designs, Valcor Engineering can modify existing technology to suit practically every hard-to-handle application. We also specialize in creating custom products to meet your most demanding applications. Valcor's in-house manufacturing capabilities range from machining the most complex parts in our computer numerical control (CNC) machining and turning centers to our fully automated welding and composite winding machines.

## How many employees does your company have?

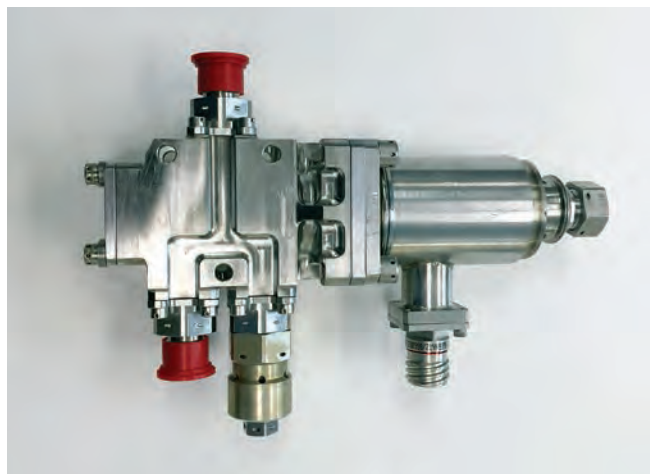
Valcor Engineering employs approximately 250 full-time employees.

## How long have you supported the SLS Program?

Valcor has supported the SLS program since 2011, and has served as a technical liaison as design and technology



Valcor has state-of-the-art clean room facilities, allowing the company to accommodate the most demanding applications, including oxygen and hypergolic fluid system components.



A three-way helium solenoid valve used throughout the SLS first stage

concepts were explored. We were awarded our first contract in 2012 to develop two high pressure cryogenic valves and two gaseous oxygen and hydrogen manifolds that will be used in the main propulsion system. This effort will continue through 2017.

## Describe what services or support you provided to the SLS Program.

Valcor is responsible for designing and qualifying five critical components for the Boeing SLS core stage. These components include the helium solenoid valves used throughout, and the tank pressurization manifold assemblies used for the fuel and oxygen tanks. Valcor is currently exploring other components to be used on the second stage.

## How has your business evolved or grown supporting the SLS Program?

Valcor has been in continuous production of space and launch vehicle-related components since the early 1960s. The unique challenges of the SLS Program have continued to evolve Valcor's designs, processes, and personnel in order to meet the demanding needs of today's piloted space flight.





Valcor's in-house CNC machine shop capabilities allow the company to accelerate the production of development hardware.



Valcor's modern inspection department features the latest in coordinate measuring machine (CMM) technology.

### Describe future endeavors for your small business with NASA and/or the Federal Government.

Valcor is committed to continuing to meet the evolving needs of the space launch industry, including supporting the SLS second stage, resupplying of the International Space Station, transporting astronauts to and from space, restarting RS-25 engine production, and supplying parts for the James Webb Space Telescope. This is in addition to supporting various other Government-led aircraft and missile defense programs.

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# Watring Technologies, Inc.



## Tell us about your company's history and its capabilities.

Watring Technologies, Inc. was formed in 1997 as the result of the entrepreneurial spirit of Dale and Lisa Watring. With a commitment to customer service and quality products, we focused on the design and manufacture of semiconductor crystal growth equipment. Within six months of the company's founding, Watring delivered our first product, which enabled our customer to obtain a competitive advantage in the commercial semiconductor crystal growth market. Our devotion to continuous improvement led us to diversify and develop new and innovative products. The company has subsequently won many design, manufacturing, and quality achievement awards, including the 2015 Alabama Manufacturer of the Year.

Watring's capabilities include expertise in systems engineering, system integration, technology development, hardware design-development-test and evaluation (DDT&E), and advanced manufacturing.

## How many employees does your company have?

Watring Technologies, Inc. has 42 employees.

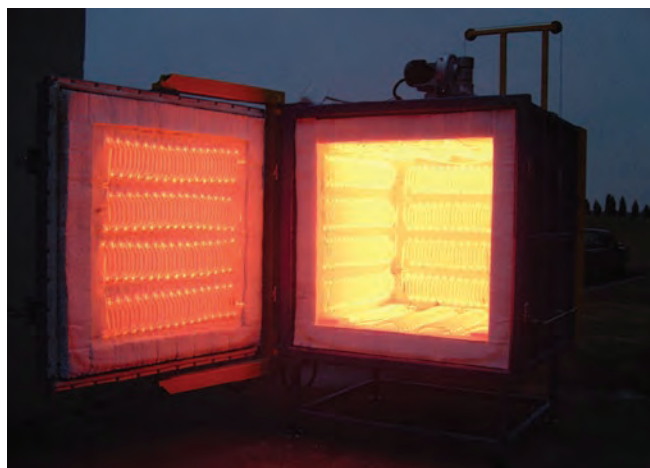
## How long have you supported the SLS Program?

Watring Technologies, Inc. has supported SLS since 2012.

## Describe what services or support you provided to the SLS Program.

Watring Technologies, Inc. supports the Boeing Company in the following areas:

- Subject matter expert (SME) for thermal protection systems
- Systems safety and systems engineering
- Manufacturing engineering/prototyping/3D printing
- Design of green run tooling and testing
- Structures and dynamics analysis
- Lead tooling engineering
- Cable design and routing
- Drawing checking
- SME metallurgist
- Electrical engineering parts materials and processes



A furnace for the manufacturing/annealing of aerospace insulation material



A furnace for the production of radiation detectors



A dolly for Orion gore panels

#### How has your business evolved or grown supporting the SLS Program?

Our business growth can be attributed to our work on the SLS Program and to our management principles, focused marketing, and strategic planning. From our company's inception, we have managed our growth based on the amount of work that our corporate infrastructure, including financial, accounting, and shipping/receiving, can successfully execute while simultaneously allowing us to provide responsive support and high quality products to our customers. We have gained recognition as one of the outstanding small businesses supporting the Boeing Company on SLS. It bolstered our reputation and we have received additional manufacturing work from other defense agencies and large business prime contractors based on our success supporting the SLS Program.

#### Describe future endeavors for your small business with NASA and/or the Federal Government.

Watring Technologies, Inc. plans to reinvest its revenues and grow. To this end, Watring has made over \$2.0 million in capital investments during the past five years and has plans to make additional capital investments in 2016 to better serve our NASA and DOD customers. This not only involves improving our corporate infrastructure but also building

our manufacturing capability. We will continue to invest in our AS9100-certified quality management system, which enables us to design and manufacture space flight hardware for NASA and DOD. Not many small businesses are AS9100 certified; this sets us apart from our competition and makes us a valuable asset to our Government customers and allows us to bid opportunities as a prime contractor.

#### Watring Technologies Inc.

2120 Meridian Street N

Huntsville, AL 35811

*Socioeconomic Category:* 8(a), Small Disadvantaged Business

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Watring has automated tank track drilling and manufacturing capabilities.






# List of Supporting Small Businesses

## TABLE KEY

-  Small businesses featured in this publication
-  Small Business Industry Awards—Agency-Level Winner

- HUBZone** Historically Underutilized Business Zone
- SB** Small Business
- SDB** Small Disadvantaged Business
- SDVOSB** Service-Disabled Veteran–Owned Small Business
- VOSB** Veteran-Owned Small Business
- WOSB** Woman-Owned Small Business

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
2ND SOURCE WIRE & CABLE, INC.	SB	Boeing
3-DIMENSIONAL SERVICES	SB	Aerojet Rocketdyne
4 STAR ELECTRONICS, INC.	SB	Boeing
A CORE CONCRETE CUTTING, INC.	SB	Orbital ATK
A2 TECHNOLOGIES	SB	Orbital ATK
AAP AUTOMATION, INC.	SB	Orbital ATK
AAXEON TECHNOLOGIES, INC.	SB	Orbital ATK
ABACUS TECHNOLOGIES, INC.	SB	Orbital ATK
ABL ELECTRONIC SUPPLIES, INC.	SB	Boeing
ABLE AEROSPACE ADHESIVES	WOSB	Boeing
ABLE ELECTRONICS, INC.	WOSB	Boeing
ACCURATE ENERGETIC SYSTEMS, LLC	HUBZone	Orbital ATK
ACCURATE MACHINE & TOOL CORP.	WOSB	Boeing
ACCURATE TECHNOLOGY	SB	Boeing
ACL COMPUTERS & SOFTWARE, INC.	SB	Boeing
ACOPIAN TECHNICAL CO.	SB	Orbital ATK
ACROAMATICS, INC.	WOSB	Orbital ATK
ACRYMAX TECHNOLOGIES, INC.	SB	Orbital ATK
ACUFAST AIRCRAFT PRODUCTS	SB	Orbital ATK
ADAPTIVE ENERGY	SB	Orbital ATK
ADEPT FASTENERS, INC.	SB	Boeing
ADVANCE PRODUCTS & SYSTEMS, INC.	SB	Orbital ATK
ADVANCED AIR PRODUCTS CO.	SB	Orbital ATK
ADVANCED AIRCRAFT SEAL	WOSB	Boeing
ADVANCED PATTERN WORKS, INC.	SB	Boeing
ADVANCED SIMULATION TECHNOLOGY	SB	Orbital ATK
ADVANCED TECHNICAL FINISHING	SB	Teledyne Brown Engineering
ADVANCED TECHNOLOGY ASSOCIATES	VOSB	Orbital ATK
AERO ENGINEERING, INC.	SDVOSB	Boeing
AERO GLEN INTERNATIONAL, LLC	WOSB	Boeing
AERO GO, INC.	SB	Orbital ATK
AERO MISSILE COMPONENTS, INC.	SB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
AERO PACIFIC MFG.	SB	Boeing
AERO-SPACE TOOLING & MACHINING	SB	Orbital ATK
AEROCRAFT INDUSTRIES, INC.	SB	Orbital ATK
AEROL CO., INC.	SB	Orbital ATK
AEROMED PRECISION, LLC	SDVOSB	Orbital ATK
AEROSPACE ENGINEERING CORP.	SB	Boeing
AEROSPACE FABRICATION & MATERIALS, LLC	SB	Boeing
AEROSPACE FITTINGS	SB	Boeing
AET ENVIRONMENTAL	SB	Orbital ATK
AF MACHINE & TOOL, INC.	WOSB	Boeing
AID EQUIPMENT CO., LLC	SDB, VOSB	Orbital ATK
AIM-USA, LLC	SB	Orbital ATK
AIR ELECTRO SUPPLY, INC.	SB	Boeing
AIRCRAFT & COMMERCIAL ENTERPRISES	SDB, WOSB	Boeing
AIREPS, INC.	WOSB	Boeing
AIRTECH INTL, INC.	SB	Orbital ATK
AKCROS CHEMICALS, INC.	SB	Orbital ATK
ALABAMA AEROSPACE	SB	Boeing, Orbital ATK
ALABAMA PAINTING, INC.	SB	Boeing
ALDEC, INC.	SB	Boeing
ALL POINTS LOGISTICS, LLC 	SDVOSB	Boeing
ALL TECH ELECTRONICS, INC.	SDB	Boeing
ALLAN AIRCRAFT SUPPLY CO.	SB	Boeing
ALLEN AIRCRAFT PRODUCTS, INC.	SB	Boeing
ALMAR INDUSTRIAL FABRICS	SB	Orbital ATK
ALTA DATA TECHNOLOGIES, LLC	SB	Boeing, Orbital ATK
ALUMIPLATE, INC.	SB	Orbital ATK
ALVA MANUFACTURING, INC.	SDB	Boeing
ALVATEK ELECTRONICS, LLC	SB	Orbital ATK
AMERICAN ASBESTOS	WOSB	Orbital ATK
AMERICAN DURAFILM CO., INC.	SB	Orbital ATK
AMERICAN EQUIPMENT, INC.	VOSB	Orbital ATK
AMERICAN MECHANICAL & ELECTRICAL	VOSB, WOSB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
AMERICAN METALLURGICAL SERVICES	SB	Orbital ATK
AMERICAN PACIFIC CORPORATION	SB	Orbital ATK
AMERICAN PRECISION HYDRAULICS	SDB, WOSB	Boeing
AMERICAN ROLL-UP DOOR CO.	SB	Orbital ATK
AMERICAN SOLVING, INC.	SB	Orbital ATK
AMRO FABRICATING CORPORATION	SDB, WOSB	Boeing, Teledyne Brown Engineering
ANACAPA MICRO PRODUCTS, INC.	HUBZone	Boeing
ANADARKO INDUSTRIES, LLC	SDB	Boeing
ANDREWS SPACE, INC.	SDB, WOSB	Orbital ATK
AOG ELECTRONIC SOLUTIONS, INC.	SDVOSB	Boeing
APEX OFFICE PRODUCTS, INC.	VOSB	Boeing
APEX SPECIALTY METALS, INC.	WOSB	Teledyne Brown Engineering
APOGEE SYSTEMS, INC.	SB	Orbital ATK
APPLIED AEROSPACE STRUCTURES CORP.	SB	Boeing
APPLIED ULTRASONICS	SB	Boeing
APTEK LABORATORIES, INC.	WOSB	Boeing
ARCAL PRECISION	VOSB	Aerojet Rocketdyne
AREA51-ESG, INC.	SDB	Boeing
AREMAC HEAT TREATING, LLC	SB	Boeing
AREMCO PRODUCTS, INC.	SB	Orbital ATK
ARES CORPORATION	SB	Boeing
ARIZONA SEALING DEVICES, INC.	SB	Orbital ATK
ARLINGTON INTERNATIONAL AVIATION PRODUCTS, LLC	WOSB	Boeing
ARNOLD MACHINERY CO.	SB	Orbital ATK
ARROW CONSTRUCTION, INC.	HUBZone	Orbital ATK
ASC INDUSTRIES, INC.	SB	Boeing
ASM AEROSPACE SPECIFICATION METALS, INC.	WOSB	Boeing
ASSOCIATED AIRCRAFT MANUFACTURING AND SALES, INC.	SB	Boeing
ASTRO MACHINE CO., INC.	SB	Boeing
ASTRO TEK INDUSTRIES, INC.	VOSB	Boeing
ASTROTECH	SB	Orbital ATK
ATA ENGINEERING, INC.	SB	Orbital ATK
ATKINSON ELECTRONICS, INC.	SB	Orbital ATK
ATS INDUSTRIAL SUPPLY	SB	Orbital ATK
AURORA BEARING CO.	SB	Boeing
AUTO TECHNOLOGY CO., INC.	SB	Orbital ATK
AUTOMATION CONSULTANTS, LLC	SB	Orbital ATK
AVANS MACHINE & TOOL	SDSB	Aerojet Rocketdyne
AVANTI CIRCUITS, INC.	VOSB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
AVION TOOL MANUFACTURING & MACHINING CENTER	SB	Boeing
AXEL PRODUCTS, INC.	SB	Orbital ATK
B & B PRECISION MACHINE, INC.	SB	Boeing, Orbital ATK, Teledyne Brown Engineering
B&H PHOTO & VIDEO	SB	Orbital ATK
B&M PAINTING CO., INC.	WOSB	Boeing
B&P PROCESS EQUIPMENT & SYSTEMS, LLC	SB	Orbital ATK
BACON INDUSTRIES	SB	Boeing
BAG CORPORATION	SB	Orbital ATK
BAKER AEROSPACE	SB	Boeing
BAKER ENGINEERING CORP.	SB	Boeing
BANNER INDUSTRIES, INC.	SB	Orbital ATK
BARBARA'S ADVANCED COPY PRINT	SB	Orbital ATK
BARBER NICHOLS, INC.	SB	Boeing
BARNHART CRANE & RIGGING CO.	SB	Boeing
BAUGHN ENGINEERING, INC.	SB	Boeing
BAY CITY MARINE, INC.	SDB	Orbital ATK
BAY SEAL CO.	SB	Orbital ATK
BD SYSTEMS, INC.	SDB, WOSB	Orbital ATK
BEABOUT BROCK EASLEY, LLC	VOSB	Orbital ATK
BEAR RIVER FABRICATION & MACHINE, INC.	VOSB	Orbital ATK
BEMCO, INC.	SB	Orbital ATK
BENNETTS SERVICES, INC.	SB	Orbital ATK
BERANEK, INC.	SB	Aerojet Rocketdyne
BERKELEY FORGE & TOOL, INC.	SB	Orbital ATK
BISCO INDUSTRIES, INC.	SB	Boeing
BJG ELECTRONICS, INC.	WOSB	Boeing
BK MANUFACTURING CO., INC.	WOSB	Boeing
BLANCHARD METALS PROCESSING CO.	SB	Orbital ATK
BLEND-ALL CHEMICALS	SB	Orbital ATK
BLUEFIN INTERNATIONAL, INC.	SB	Boeing
BOCA TRONICS, INC.	SDB, WOSB	Boeing
BOEDEKER PLASTIC, INC.	SB	Orbital ATK
BOLT AND NUT SUPPLY CO.	SB	Orbital ATK
BONDCOTE CORPORATION	SB	Orbital ATK
BOULDER SCIENTIFIC CO.	SB	Orbital ATK
BREVARD BUSINESS TELEPHONE SYSTEMS, INC.	SB	Orbital ATK
BRINDLEE MOUNTAIN MACHINE & TOOL	SB	Orbital ATK
BRISKEY MECHANICAL, INC.	SDB	Orbital ATK
BRITTS AIR CONDITIONING, INC.	SB	Orbital ATK
BRON AEROTECH, INC.	SB	Orbital ATK



SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
BRON TAPES OF UTAH, INC.	SB	Orbital ATK
BROOKFIELD ENGINEERING LABORATORIES	SB	Orbital ATK
BROOKS INSTRUMENT, LLC	SB	Orbital ATK
BRUCE E. KINCHEN	VOSB	Orbital ATK
BST SYSTEMS, INC.	SB	Orbital ATK
BTC ELECTRONIC COMPONENTS, INC.	SB	Boeing
BTC SERVICES	SB	Orbital ATK
BUTLER PRECISION COMPONENTS, INC.	WOSB	Boeing
C&M MACHINE, INC.	VOSB, WOSB	Boeing
CACHE VALLEY GLASS	SB	Orbital ATK
CADENCE LEASING, LLC	VOSB, SDVOSB	Orbital ATK
CALIFORNIA FINE WIRE COMPANY	SB	Orbital ATK
CALIFORNIA METAL & SUPPLY, INC.	SB	Boeing
CALLS FORT SAND & GRAVEL	SB	Orbital ATK
CAMFIL USA, INC.	SB	Orbital ATK
CANON SOLUTIONS AMERICA, INC.	SB	Orbital ATK
CANVAS, INC.	WOSB, HUBZone	Teledyne Brown Engineering
CANYON COMPOSITES, INC.	SB	Boeing
CAPACITEC, INC.	SB	Boeing
CAPP, INC.	SB	Orbital ATK
CARASOFT TECHNOLOGY CORP.	SB	Orbital ATK
CARDWELL DISTRIBUTING, INC.	SB	Orbital ATK
CARLIN SYSTEMS, INC.	SB	Boeing
CARR LANE MFG. CO.	WOSB	Boeing
CASCADE GASKET & MFG. CO., INC.	WOSB	Boeing
CASETECH, INC.	SB	Orbital ATK
CB TECHNOLOGIES, INC.	SB	Boeing
CCP COMPOSITES US	SB	Orbital ATK
CDI MEDIA, INC.	SB	Orbital ATK
CDM ELECTRONICS, INC.	SB	Boeing
CEC ELECTRONICS	SDB	Boeing
CENTRAL VALLEY MACHINE, INC.	WOSB	Orbital ATK
CENTURY FASTENERS CORP.	SB	Boeing
CERTIFIED MANUFACTURING ENTRPRISES	SDVOSB	Boeing
CERTIFIED MFG., INC.	WOSB	Boeing
CFD RESEARCH CORPORATION	SB, WOSB	Orbital ATK
CHARLESTON ALUMINUM, LLC	SB	Boeing
CHARLIE WEBSTER	SB	Orbital ATK
CHEMKO TECHNICAL SERVICES, INC.	WOSB	Boeing
CHRISTENSEN OIL CO.	SB	Orbital ATK
CIMARRON SOFTWARE SERVICES, INC.	WOSB	Boeing
CINTAS CORPORATION	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
CIRCLE C CONSTRUCTION, INC.	VOSB	Orbital ATK
CIRCUIT EXPRESS, INC.	SB	Orbital ATK
CIRCUIT SYSTEMS CO.	SB	Boeing
CIRRIS SYSTEMS CORPORATION	SB	Orbital ATK
CLICK BOND	VOSB	Boeing
CLIMAX PORTABLE MACHINING & WELDING SYSTEMS	SB	Orbital ATK
COAST AEROSPACE MFG., INC.	SDB	Boeing
COASTAL COMPONENT INDUST, INC.	WOSB	Boeing
COASTLINE METAL FINISHING CORP.	SB	Boeing
COATS AMERICAN, INC.	SB	Orbital ATK
COGSDILL TOOL PRODUCTS, INC.	SB	Boeing
COLE MACHINE & MFG.	WOSB	Orbital ATK
COLEMAN MACHINE, INC.	WOSB	Boeing, Teledyne Brown Engineering
COLLIER RESEARCH CORP.	SB	Orbital ATK
COLLIFLOWER, INC.	SB	Boeing
COLONIAL BUILDING SUPPLY, LLC	SB	Orbital ATK
COMMERCIAL MILITARY SUPPLY	SB	Boeing
COMPOSITE TECHNOLOGIES MI, INC.	VOSB	Orbital ATK
COMTECH PST CORPORATION	SB	Orbital ATK
CONAX TECHNOLOGIES, LLC	SB	Orbital ATK
CONCURRENT COMPUTER CORP.	SB	Boeing, Orbital ATK
CONSTITUTION CABLE PRODUCTS, INC.	WOSB	Orbital ATK
CONTINENTAL HEAT TREATING, INC.	SB	Boeing
CONVEYORS & EQUIPMENT, INC.	SB	Orbital ATK
COONER WIRE CO.	SB	Orbital ATK
CORFIN INDUSTRIES, LLC	SB	Boeing
CORLAND CO.	SB	Boeing
CORNERSTONE SUPPLY, INC.	WOSB	Boeing
CORTEC CORPORATION	SB	Orbital ATK
COTTERMAN CO.	SB	Boeing
COX AND CO., INC.	SB	Boeing
CR2 SERVICES, LLC	VOSB	Orbital ATK
CRAIG TECHNOLOGIES	SDB, WOSB, SDVOSB	Boeing
CRAIG TECHNOLOGIES AEROSPACE	WOSB, HUBZone	Orbital ATK
CRATERS & FREIGHTERS	SB	Orbital ATK
CREATIVE PATHWAYS, INC.	SB	Boeing
CREATIVE TENT INTERNATIONAL	WOSB	Orbital ATK
CREST COATING, INC.	SB	Orbital ATK
CRESTWOOD TECHNOLOGY GROUP	WOSB	Boeing, Orbital ATK
CRM SOLUTIONS, INC.	WOSB	Teledyne Brown Engineering

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
CROSS COMPONENTS, INC.	SB	Boeing
CROWN CASTERS & HANDTRUCKS, INC.	SB	Orbital ATK
CRS CONSULTING ENGINEERS, INC.	SB	Orbital ATK
CRYSTAL FILTRATION CO.	SB	Orbital ATK
CSA ENGINEERING, INC.	SB	Orbital ATK
CST OF AMERICA, INC.	SB	Orbital ATK
CT CORE TECHNOLOGIES, INC.	SB	Orbital ATK
CUMMINS AEROSPACE	VOSB	Orbital ATK
CURTIS INDUSTRIES, INC.	SB	Orbital ATK
D AND D MACHINERY AND SALES, INC.	WOSB	Boeing
DALMEC, INC.	SB	Orbital ATK
DASCO ENGINEERING CORP.	SB	Boeing
DATA DEVICE CORPORATION	SB	Orbital ATK
DAVIS & DAVIS	SB	Orbital ATK
DAVIS INDUSTRIES	HUBZone, WOSB	Boeing
DAVIS NDE, INC.	VOSB	Boeing
DAVIS STRATEGIC INNOVATIONS, INC.	SDVOSB	Teledyne Brown Engineering
DECO SALES CO., INC.	WOSB	Boeing
DEFENSE SUPPLIERS OF ELECTRONIC COMPONENTS, INC.	SDB, WOSB	Boeing
DEFT, INC.	SB	Orbital ATK
DELL MARKETING, LP	SB	Orbital ATK
DELTA M CORPORATION	SB	Orbital ATK
DELVA TOOL & MACHINE CORP.	SB	Boeing
DENEC, LLC	WOSB	Orbital ATK
DENNIS T. SAUER	SB	Orbital ATK
DESE RESEARCH, INC.	SB	Boeing
DEWETRON, INC.	WOSB	Orbital ATK
DGM ELECTRONICS, INC.	SB	Boeing
DIAMOND RENTAL, INC.	SB	Orbital ATK
DIENES CORPORATION	SB	Orbital ATK
DIGI KEY ELECTRONICS	SB	Orbital ATK
DIVERSIFIED METAL SERVICES, INC.	SB	Orbital ATK
DIXON MIRROR AND GLASS CO.	SB	Orbital ATK
DJ ENGINEERING, INC.	VOSB	Boeing
DM TOOL & FAB, INC.	VOSB	Boeing
DNB ENGINEERING, INC.	SB	Boeing
DOCS AEROSPACE, LLC	WOSB	Orbital ATK
DOUGLAS ELECTRICAL COMPONENTS	SB	Boeing
DR. WILLIAM WILSON	VOSB	Orbital ATK
DUCWORKS, INC.	WOSB	Orbital ATK
DY AUS	SDB, WOSB	Orbital ATK
DYE PRECISION, INC.	SB	Orbital ATK
DYNAMIC CONCEPTS, INC.	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
DYNAMIC ENGINEERING	SB	Boeing
DYNAMIC ENTERPRISES, INC.	WOSB	Orbital ATK
DYNAMIC PAINT SOLUTIONS	SB	Boeing
DYNAMIC TOOL CO., INC.	SB	Boeing
DYNASOL, LLC	SB	Orbital ATK
DYNASTY ELECTRONIC CORP., LLC	SB	Boeing
E&C PARTNERS, INC.	WOSB	Orbital ATK
E LABS, INC.	SB	Boeing
E T HORN CO.	SB	Orbital ATK
E V ROBERTS	SB	Orbital ATK
EAGLE ALLOYS CORP.	WOSB	Orbital ATK
EAGLE ELASTOMER	SB	Orbital ATK
EAGLE ENVIRONMENTAL, INC.	SB	Orbital ATK
EAST COAST ELECTRONICS AND DATA, INC.	WOSB	Boeing
EBELING ENTERPRISES, LLC	HUBZone	Orbital ATK
EC-NDT, LLC	SB	Boeing
ECORE INTERNATIONAL, INC.	SB	Orbital ATK
ED VICKERY	SB	Orbital ATK
EILERTSON ENTERPRISES	SB	Orbital ATK
ELECTRO COATINGS OF TEXAS, INC.	SB	Orbital ATK
ELECTRO ENTERPRISES, INC.	WOSB	Boeing
ELECTRONIC FASTENERS, INC.	VOSB	Boeing
ELECTROSPEC, INC.	VOSB	Boeing
ELSON ENGINEERING	SB	Boeing
EMERALD CITY INITIATIVES, INC.	WOSB	Teledyne Brown Engineering
EMERALD PERFORMANCE MATERIALS	SB	Orbital ATK
EMF, INC.	SB	Boeing
EMF COMPANY, INC.	SB	Orbital ATK
EMLAB P&K	SB	Orbital ATK
ENDIGIT, INC.	SB	Orbital ATK
ENERGY MANAGEMENT CORPORATION	SB	Orbital ATK
ENERGY WEST CONTROLS	SB	Orbital ATK
ENSIGN BICKFORD AEROSPACE & DEFENSE CO.	SB	Boeing, Orbital ATK
ESE	SB	Orbital ATK
ESI NORTH AMERICA, INC.	SB	Orbital ATK
ESM AEROSPACE, INC.	SDB, WOSB	Orbital ATK
EV ROBERTS	SB	Boeing
EXECUTIVE INFORMATION SYSTEMS	SB	Orbital ATK
EXPANDED RUBBER & PLASTIC CORPORATION	SB	Boeing
EXPEDITE SHIMS & STAMPINGS	VOSB	Orbital ATK
EXPLOSIVES BUREAU, INC.	SB	Orbital ATK
EXTRUDE HONE CORPORATION	SB	Orbital ATK
FABRI STEEL, LLC	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
FALCON ELECTRONICS, INC.	SDB	Boeing
FANCORT INDUSTRIES, INC.	SB	Boeing
FANUC AMERICA CORPORATION	SB	Orbital ATK
FASTENAIR CORPORATION	SDVOSB	Boeing
FASTENER DEPOT, INC.	WOSB	Boeing
FASTENER ENGINEERING & SALES	SB	Orbital ATK
FASTENER TECHNOLOGY CORP.	SB	Boeing
FIBA TECHNOLOGIES, INC.	SB	Orbital ATK
FIERO FLUID POWER, INC.	SB	Orbital ATK
FIKE CORPORATION	WOSB	Orbital ATK
FILCONN	SB	Boeing
FILTER TECHNOLOGIES	WOSB	Orbital ATK
FLAWTECH	VOSB	Boeing
FLORIDA AGRICULTURAL & MECHANICAL UNIVERSITY	SDB	Orbital ATK
FLORIDA NATIONAL BUILDERS, INC.	SB	Orbital ATK
FLUID COMPONENTS USA	WOSB	Boeing
FMH CORPORATION	SB	Aerojet Rocketdyne
FOLSOM ASSOCIATES	SB	Orbital ATK
FORCE MEASUREMENT SYSTEMS, INC.	SB	Orbital ATK
FOREMASTER TOOL CO., INC.	SB	Orbital ATK
FORT WALTON MACHINING, INC.	WOSB	Boeing
FRANKLIN APPLIED PHYSICS, INC.	SB	Orbital ATK
FRED CULICK	SB	Orbital ATK
FREDS MARINE, INC.	SB	Orbital ATK
FREEPORT CENTER ASSOCIATES, LLP	SB	Orbital ATK
FULL SPECTRUM ANALYTICS, INC.	SDB	Orbital ATK
FUTURAMIC TOOL & ENGINEERING CO.	SB	Boeing, Teledyne Brown Engineering
G&D INDUSTRIES	SB	Aerojet Rocketdyne
G.R.A.S. SOUND & VIBRATION	SB	Orbital ATK
GACO WESTERN, LLC	SB	Orbital ATK
GAGE LAB PRODUCTS, INC.	SB	Orbital ATK
GALAXY TECHNOLOGIES, INC.	SB	Boeing
GALLADE CHEMICAL, INC.	SB	Boeing
GARDNER BELLOWS	SB	Aerojet Rocketdyne
GARDNER DENVER WATER JETTING	SB	Orbital ATK
GARDNER ENGINEERING	SB	Orbital ATK
GARLAND SERVICE CO.	SB	Boeing
GATEWAY CO. OF MISSOURI, LLC	SB	Boeing
GC MICRO CORPORATION	WOSB	Boeing
GCR TIRES & SERVICE	SB	Orbital ATK
GENERAL PLASTICS MANUFACTURING CO.	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
GENERAL PRODUCTS	SB	Boeing, Orbital ATK
GENERAL PRODUCTS, LLC	SB	Teledyne Brown Engineering
GENERAL STANDARDS CORP.	VOSB	Boeing
GENESIS JIT	SDB, SDVOSB	Boeing
GENESIS SYSTEMS GROUP, LLC	SB	Boeing
GEOCENT, LLC	SB	Boeing
GEOLOGICS CORPORATION	SDB	Boeing
GLOYER TAYLOR LABORATORIES, LLC	SB	Orbital ATK
GOLDENWEST PAINTING, INC.	SB	Orbital ATK
GRACO SUPPLY CO.	SB	Orbital ATK
GRAHAM & COMPANY SOUTHEAST, LLC	SB	Orbital ATK
GREAT BASIN CONTRACTING, INC.	SB	Orbital ATK
GREAT WESTERN SUPPLY, INC.	SB	Orbital ATK
GROVER EXCAVATION, INC.	SB	Orbital ATK
GYRON EAGLE	SB	Orbital ATK
H&E EQUIPMENT SERVICES, INC.	SB	Orbital ATK
H-FAM ENGINEERING	SB	Orbital ATK
HALES ENGINEERING	SDB	Aerojet Rocketdyne
HALO INDUSTRIES, INC.	WOSB	Boeing
HAMPTON SCOTT GROUP	WOSB	Boeing
HARCOURT INDUSTRIAL, INC.	SB	Boeing
HARRY KRANTZ CO., LLC	SB	Boeing
HARTZELL MACHINE WORKS, INC.	SB	Boeing
HEART OF GA METAL CRAFTERS, LLC	SB	Boeing
HEARTLAND PRECISION FASTENERS	SB	Boeing
HEATCON COMPOSITE SYSTEMS, INC.	VOSB	Orbital ATK
HEATER DESIGNS, INC.	SB	Orbital ATK
HENTZEN COATINGS, INC.	SB	Orbital ATK
HERBER AIRCRAFT SERVICES	SB	Boeing
HERNDON PRODUCTS, INC.	SB	Boeing
HERRICK INDUSTRIAL SUPPLY CO.	SB	Orbital ATK
HESCO	SB	Orbital ATK
HESCO SERVICES, INC.	SDB	Orbital ATK
HI TECHNIQUES	SB	Orbital ATK
HI-TEMP INSULATION	SB	Boeing
HI VALLEY CHEMICAL	SB	Orbital ATK
HIGH SIERRA ELECTRONICS	WOSB	Boeing
HIREL CONNECTORS	SB	Aerojet Rocketdyne
HISCO, INC.	SB	Boeing
HLS CONSTRUCTION, INC.	SDB	Orbital ATK



SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
HOEFNER	VOSB	Aerojet Rocketdyne
HOMEYER PRECISION MANUFACTURING	SB	Boeing
HOSE POWER USA, INC.	SB	Orbital ATK
HOUSTON PRECISION FASTENERS <sup>(2013)</sup>	SB	Orbital ATK
HOVAIR SYSTEMS, INC.	SB	Orbital ATK
HTS AMPTEK	VOSB	Orbital ATK
HUMPHREYS & ASSOCIATES, INC.	VOSB	Orbital ATK
HUNTINGTON VALLEY INDUSTRIES, INC.	SB	Boeing
HURLEN CORPORATION	SB	Boeing
HYDRAPAK SEALS, INC.	SB	Orbital ATK
HYDRAULIC CONTROLS, INC.	SB	Orbital ATK
HYDRAULICS INTERNATIONAL, INC.	WOSB	Boeing
HYTORC DIV UNEX CORPORATION	SB	Orbital ATK
ICO RALLY	WOSB, HUBZone	Aerojet Rocketdyne
IHS GLOBAL, INC.	SB	Orbital ATK
ILC DOVER	SB	Orbital ATK
ILLINOISROCSTAR, LLC	SB	Orbital ATK
IM SOLUTIONS, INC.	SDB, WOSB, SDVOSB	Orbital ATK
IMAGINEERING FINISHING	SB	Boeing
IMPACT CASE AND CONTAINER	SB	Orbital ATK
IMPREGLOON SURFACE TECHNOLOGIES	WOSB	Orbital ATK
INDUSTRI TECH, LLC	SB	Orbital ATK
INDUSTRIAL FLUORO PLASTICS, INC.	SB	Orbital ATK
INDUSTRIAL GASKET, INC.	SB	Orbital ATK
INDUSTRIAL HEAT TREAT	SB	Orbital ATK
INDUSTRIAL NOISE CONTROL, INC.	SB	Orbital ATK
INDUSTRIAL RESEARCH, INC.	SB	Orbital ATK
INDUSTRIAL SUPPLY CO., INC.	WOSB	Orbital ATK
INKLEYS CAMERA AND IMAGE	SB	Orbital ATK
INNOVATIVE ENGINEERING SOLUTIONS	WOSB	Boeing
INSIDE MOVE STRATEGIC SVC, INC.	WOSB	Boeing
INTECH SERVICES, INC.	SB	Orbital ATK
INTEGRAL PRODUCTS	SB	Boeing
INTEGRATED SUPPORT SYSTEMS, INC.	SDVOSB, VOSB	Boeing, Orbital ATK
INTERFACE, INC.	SB	Orbital ATK
INTERMOUNTAIN HYDRAULICS & AUTOMATION	SB	Orbital ATK
INTERNATIONAL COMPUTER		Boeing
INTERSTATE GRATINGS, LLC	SB	Orbital ATK
INTERSTATE HYDRAULICS, INC.	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
INTRA MANAGEMENT SOLUTIONS, INC.	SB	Boeing
ION CORPORATION	SDB	Boeing
IRVINE ELECTRONICS	WOSB	Aerojet Rocketdyne
ISO GROUP, INC.	SB	Boeing
J&J SHUTTERS	SB	Orbital ATK
J K SUPPLY, INC.	SB	Orbital ATK
J AND K CONNECTORS	SB	Orbital ATK
J F SHELTON	SB	Orbital ATK
J&M AEROSPACE, LLC	SDB, WOSB	Boeing
JACK'S TIRE & OIL MANAGEMENT CO., INC.	SB	Orbital ATK
JACKSON AEROSPACE, INC.	WOSB	Boeing
JAMES TOOL MACHINE & ENGINEERING, INC.	VOSB	Boeing
JBS SOLUTIONS, INC.	WOSB, HUBZone	Teledyne Brown Engineering
JD MACHINE, INC.	SB	Orbital ATK
JELIGHT COMPANY	SB	Orbital ATK
JENSEN PRECISION MACHINING, INC.	SB	Orbital ATK
JERRY'S PLUMBING SPECIALTIES	SB	Orbital ATK
JET MICRO CORPORATION	WOSB	Boeing
JIT MILITARY SALES	SDB, WOSB	Boeing, Teledyne Brown Engineering
JM CANTY, INC.	SB	Orbital ATK
JMC INSTRUMENTS, INC.	SB	Orbital ATK
JOHN J. MAZUR, INC.	SB	Boeing
JOHNSON ENGINEERING AND TESTING	WOSB	Orbital ATK
JOHNSON SUPPLY CO.	SB	Boeing
JOYCE DAYTON CORPORATION	SB	Orbital ATK
K R ANDERSON, INC.	SB	Orbital ATK
KAP MANUFACTURING, INC.	SDB, WOSB	Boeing
KAPCO GLOBAL	SB	Boeing
KAYCO COMPOSITES, LLC	VOSB	Orbital ATK
KEITH H FOULGER	SB	Orbital ATK
KEYSIGHT TECHNOLOGIES, INC.	SB	Boeing
KIMBALL ELECTRONICS, INC.	SB	Orbital ATK
KITRICK MANAGEMENT CO. LTD., LLC	WOSB	Boeing
KJL FASTENERS	SB	Orbital ATK
KORD TECHNOLOGIES, INC.	WOSB	Boeing
KRAYDEN, INC.	SB	Boeing, Orbital ATK
KRYS OYLER AND SONS CONSTRUCTION, INC.	SB	Orbital ATK
KULITE SEMICONDUCTOR PRODUCTS	SB	Orbital ATK
KWAL PAINT	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
LAKES REGION TUBULAR PRODUCTS, INC.	SB	Boeing
LANDMARK COMPANIES, INC.	WOSB	Orbital ATK
LANSMONT CORPORATION	SB	Orbital ATK
LARGO CIRCUIT DESIGN, INC.	SB	Boeing
LARSEN CONSTRUCTION CO.	SB	Orbital ATK
LASERCOMP, INC.	SB	Orbital ATK
LAT-LON, LLC	SB	Orbital ATK
L-COM, INC.	SB	Orbital ATK
LE BUS	SB	Orbital ATK
LEANWERKS	SB	Orbital ATK
LEDA CORPORATION	SDB, WOSB	Aerojet Rocketdyne, Boeing
LEFIELL	SB	Aerojet Rocketdyne
LELAND G. BAILEY	SB	Orbital ATK
LEWIS GOETZ AND CO., INC.	SB	Orbital ATK
LIFTING TECHNOLOGIES, INC.	SB	Orbital ATK
LINTECH COMPONENTS CO., INC.	SB	Boeing
LIT INDUSTRIES, INC.	SB	Orbital ATK
LOOS & CO., INC.	SB	Orbital ATK
LORD CORPORATION	SB	Orbital ATK
LOVERIDGE MACHINE CO.	SB	Orbital ATK
LOWELL ARCHIBALD & SONS, INC.	SB	Orbital ATK
LR TECHNOLOGIES, INC.	SB	Orbital ATK
LSINC CORPORATION	WOSB	Boeing
LUND EQUIPMENT RENTAL, LLC	SB	Orbital ATK
LYNNS AUDIO VIDEO	SB	Orbital ATK
M E TAYLOR ENGINEERING, INC.	SB	Orbital ATK
M S AEROSPACE	SB	Orbital ATK
M3 TECHNOLOGY	WOSB	Boeing
MACH I, INC.	VOSB	Orbital ATK
MADISON AEROSPACE, INC.	SDB, WOSB	Orbital ATK
MAGMA	SDVOSB	Boeing
MAGNETIKA, INC.	SB	Boeing
MAJOR TOOL & MACHINE, INC.	SB	Boeing, Orbital ATK, Teledyne Brown Engineering
MANUFACTURING & INDUSTRIAL TECHNOLOGIES, INC.	WOSB	Boeing
MANUFACTURING SERVICES, INC.	SB	Orbital ATK
MANUFACTURING TECHNOLOGY, INC.	SB	Boeing
MARIETTA NONDESTRUCTIVE	SB	Boeing
MARINE TRAVELIFT, INC.	SB	Boeing
MAROTTA CONTROLS, INC.	SB	Orbital ATK
MARSHALL INDUSTRIES, INC.	SB	Orbital ATK
MARTINEZ & TUREK, INC.	SDB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
MASTER BOND, INC.	SB	Boeing
MAYNARD, INC.	SB	Boeing
MCNEIL & NRM INTL., INC.	SB	Orbital ATK
MEADOWGATE TECHNOLOGIES, LLC	HUBZone	Boeing
MEASUREMENT SYSTEMS INTERNATIONAL	SB	Orbital ATK
MECHANICAL PRODUCTS INTERMOUNT	SB	Orbital ATK
MEDTHERM CORP.	SB	Orbital ATK
MEI TECHNOLOGIES, INC.	SDVOSB	Boeing
MEKTECH COMPOSITES, INC.	SB	Orbital ATK
MELDRUM SCALE CO., INC.	SB	Orbital ATK
METAL RESEARCH, INC.	HUBZone	Orbital ATK
METALEX MANUFACTURING, INC.	SDB, VOSB	Aerojet Rocketdyne, Boeing, Orbital ATK
METALTECH NDT, LLC	SB	Orbital ATK
METALWERKS	VOSB	Aerojet Rocketdyne
MICRO-OHM CORPORATION	SB	Orbital ATK
MICRO STEEL, INC.	WOSB	Boeing
MICROLEASE	SB	Boeing
MICROSS COMPONENTS	SB	Boeing
MIDDLEBURG YARN PROCESSING, INC.	SB	Orbital ATK
MIDGLEY HUBER, INC.	SB	Orbital ATK
MILBURN ENGINEERING, INC.	SB	Orbital ATK
MILESTEK CORPORATION	SB	Orbital ATK
MILLENNIUM ENGRG & INTGRN CO.	VOSB	Boeing
MILLER CONSULTING GROUP, INC.	SB	Orbital ATK
MILLER-STEPHENSON CHEMICAL CO., INC.	SB	Boeing
MINORITY ALLIANCE CAPITAL, LLC	SB	Orbital ATK
MIT DISTRIBUTORS	SB	Boeing
MNEMONICS, INC.	SB	Boeing
MODELS & TOOLS, INC.	SB	Boeing
MOELLER MFG. AND SUPPLY, INC.	SB	Orbital ATK
MOTION SAVERS, INC.	SB	Teledyne Brown Engineering
MOUNTAIN CONTROLS, INC.	SB	Orbital ATK
MOUNTAIN SUN MECHANICAL, INC.	WOSB	Orbital ATK
MOUSER ELECTRONICS	SB	Orbital ATK
MOVIE SITE POWER & LIGHT, INC.	SB	Orbital ATK
MS AEROSPACE	SB	Aerojet Rocketdyne
MSI TRINITY	SB	Orbital ATK
MSL PRECISION, LLC	SB	Boeing
MUELLER MACHINE & TOOL CO., LLC	SB	Boeing
MULTILAYER TECHNOLOGY	SB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
NASCO AEROSPACE & ELECTRONICS	HUBZone, WOSB	Boeing
NATIONAL MICROCHIP	SB	Boeing
NATIONAL PROCESS INDUSTRIES, INC.	SB	Boeing
NDT INTERNATIONAL, INC.	SB	Orbital ATK
NELSEN SHEET METAL	SB	Orbital ATK
NELSON ENGINEERING CO.	SB	Orbital ATK
NELSON INTERMOUNTAIN CRANE, INC.	SB	Orbital ATK
NETACQUIRE CORPORATION	SB	Boeing
NEW ERA CONTRACT SALES, INC.	WOSB	Boeing
NEW RIVER KINEMATICS	SB	Boeing
NEW SOURCE CORPORATION	WOSB	Boeing
NEWCO, INC.	SB	Boeing
NEWONICS, INC.	SB	Orbital ATK
NIELSEN ENGINEERING & RESEARCH	SB	Orbital ATK
NISH ROCK/ROCKY MOUNTAIN AGGREGATE	SB	Orbital ATK
NITROCISION, LLC	SB	Orbital ATK
NLB CORPORATION	SB	Orbital ATK
NLOGIC, LLC	SB	Boeing
NORMAN FILTER CO., LLC	SB	Boeing
NORTH ALABAMA COMPOSITES CO.	SB	Orbital ATK
NORTH AMERICAN SYSTEMS INTL., INC.	SB	Boeing
NORTHWEST MACHINING & MFG., INC.	SB	Orbital ATK
NORTHWOOD RENTALS	SB	Orbital ATK
NUTECH STEEL, INC.	WOSB	Orbital ATK
OLANDER COMPANY	SB	Orbital ATK
OMEGA ENGINEERING, INC.	SB	Orbital ATK
OMNI ELECTROMOTIVE	SB	Aerojet Rocketdyne
OMNI WESTERN, INC.	SB	Boeing
ONEIDA CONSTRUCTION	SDB	Orbital ATK
ONYX AEROSPACE, INC.	HUBZone	Boeing
OPTICAL GAGING PRODUCTS	SB	Orbital ATK
OPTIMIZE AEROSPACE CORP.	WOSB	Orbital ATK
ORACLE AMERICA, INC.	SB	Orbital ATK
ORIGIN TECHNOLOGIES CORP.	SB	Boeing
PACIFIC AEROSPACE MACHINE, INC.	SDB	Boeing
PACIFIC SERVICES & SOLUTIONS	SB	Boeing
PACIFIC STEEL & RECYCLING	SB	Orbital ATK
PACIFICA ENGINEERING, INC.	SB	Boeing
PACKAGING SYSTEMS, INC.	VOSB	Boeing
PACKAGING UNLIMITED	SB	Boeing
PAINE ELECTRONICS, LLC	SB	Orbital ATK
PARAGON PRESS, INC.	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
PARAMOUNT SUPPLY CO.	SB	Boeing
PARTS WAREHOUSE, INC.	SB	Orbital ATK
PASTERNAK ENTERPRISES, INC.	SB	Boeing
PATRIOT MACHINE, INC.	WOSB	Boeing
PAWLING ENGINEERED PRODUCTS, INC.	SB	Orbital ATK
PB METALS & SUPPLY CO.	SB	Boeing
PEERLESS ELECTRONICS, INC.	SB	Boeing
PEI GENESIS, INC.	SB	Orbital ATK
PELICAN SALES, INC.	WOSB	Boeing
PETERSEN, INC.	WOSB	Orbital ATK
PH TOOL, LLC	SB	Boeing
PHASE IV ENGINEERING, INC.	VOSB	Orbital ATK
PHILLIP C. PETTY	SB	Orbital ATK
PHOTO EMISSION TECH, INC.	SB	Orbital ATK
PHOTO STENCIL	SB	Boeing
PHOTOMETRICS	SB	Orbital ATK
PIC WIRE & CABLE	SB	Boeing
PICKERING INTERFACES, INC.	SB	Boeing
PLANET TOOL & ENGINEERING	SB	Boeing
PLANETARY SYSTEMS CORP.	SB	Orbital ATK
POLYSCIENCE	SB	Orbital ATK
POWELL ELECTRONICS, INC.	SB	Boeing
POWER ENGINEERING CO., INC.	SB	Orbital ATK
POWER TRANSMISSION SPECIALITIES	WOSB	Orbital ATK
PQ LABS, INC.	SB	Orbital ATK
PRC DESOTO INTL., INC.	SB	Orbital ATK
PRECISION AEROSPACE CORPORATION	SDB	Aerojet Rocketdyne
PRECISION IBC, INC.	SB	Orbital ATK
PRECISION INDUSTRIES, INC.	SB	Boeing
PRECISION MACHINED PRODUCTS	SB	Boeing
PRECISION TUBE BENDING	WOSB	Aerojet Rocketdyne, Boeing
PREMIER ENCLOSURE SYSTEMS, INC.	VOSB	Boeing
PREMIER TECHNOLOGY, INC.	SB	Orbital ATK
PRENTEX ALLOY FABRICATORS, INC.	WOSB	Boeing
PRESIDIO COMPONENTS, INC.	SB	Boeing
PRINCETON INSTRUMENTS	SB	Orbital ATK
PRISMTECH CORPORATION		Boeing
PROCESS FAB, INC.	WOSB	Boeing, Orbital ATK
PROCESS TECHNOLOGY, INC.	SB	Orbital ATK
PRODUCTION TOOL & TECHNOLOGY, INC.	WOSB	Boeing
PROFESSIONAL PLASTICS, INC.	WOSB	Boeing, Orbital ATK
PROGRESSIVE SURFACE	SB	Orbital ATK



SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
PROTECH COATINGS, INC.	SDB, WOSB	Orbital ATK
PROVANTAGE, LLC	SB	Orbital ATK
PSC INDUSTRIAL OUTSOURCING	SB	Orbital ATK
PT INDUSTRIES, INC.	WOSB	Boeing
PULCIR, INC.	VOSB	Orbital ATK
PULSE INSTRUMENTS	WOSB	Boeing
PUSHCORP, INC.	SB	Boeing
PWS MOTION CONTROL, INC.	VOSB	Orbital ATK
Q-TECH CORPORATION	WOSB	Boeing
QUADRUS CORPORATION	SDB	Boeing
QUAL PRO CORPORATION	VOSB	Boeing
QUALITY PLATING CO., INC.	SB	Orbital ATK
QUALITY TECH MFG., INC.	VOSB	Boeing
QUANTUM COMPOSITE, INC.	SB	Orbital ATK
QUARTUS ENGINEERING, INC.	SB	Orbital ATK
QUEST ONE, LLC	WOSB	Boeing
QUICKIE TIE-DOWN ENTERPRISES, LLC	WOSB	Orbital ATK
R D ABBOTT CO., INC.	SB	Orbital ATK
R H MARLIN, INC.	SB	Orbital ATK
R S HUGHES CO., INC.	SB	Orbital ATK
R&B MACHINE	SB	Boeing
R&M ENTERPRISES, INC.	SDB, WOSB	Boeing
RA-ELCO	SB	Orbital ATK
RACKMOUNT SOLUTIONS, INC.	SB	Boeing
RANDOLPH PRODUCTS CO.	SB	Orbital ATK
RAPID TOOL, LLC	SB	Orbital ATK
RBH AEROSPACE, INC.	SDB, WOSB	Boeing
RDF CORPORATION	SB	Boeing
REEF INDUSTRIES, INC.	SB	Orbital ATK
REFRIGERATION SUPPLIES DISTRIBUTOR	WOSB	Orbital ATK
REGIONAL SUPPLY, LLC	SB	Orbital ATK
REMMELE ENGINEERING, INC.	SB	Orbital ATK
RESIN TECHNOLOGY GROUP, INC.	SB	Boeing
REVEILLE SERVICES, INC.	VOSB, SDVOSB	Orbital ATK
REX HEAT TREAT	SB	Orbital ATK
RICHARD MANUFACTURING CO.	SB	Orbital ATK
RICKARD METALS, INC.	WOSB	Orbital ATK
RICKS ENTERPRISES	SB	Orbital ATK
RITEC, INC.	SB	Orbital ATK
ROBRAD TOOL & ENGINEERING, INC.	SB	Orbital ATK
ROCKET AIR SUPPLY	SB	Boeing
ROCKY MOUNTAIN WIRE ROPE	SB	Orbital ATK
ROGERS MACHINERY CO., INC.	SB	Orbital ATK
ROLY DESIGNS	SB	Orbital ATK
RONCELLI PLASTICS, INC.	SB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
ROSEBURG HYDRAULIC CYLINDER CO.	SB	Orbital ATK
ROSENTHAL MFG. CO., INC.	SB	Orbital ATK
ROTATIONAL MOLDING OF UTAH	SB	Orbital ATK
ROTEK, INC.	SB	Orbital ATK
ROTO AIRE FILTER SALES & SERVICES	SB	Orbital ATK
ROWALD REFRIGERATION SYSTEMS, INC.	SB	Orbital ATK
RUBBERCRAFT CORP. OF CA LTD.	SB	Boeing
RUSH GEARS, INC.	SB	Orbital ATK
RUSH TRUCK CENTERS SALT LAKE	SB	Orbital ATK
RUST AUTOMATION & CONTROLS, INC.	SB	Orbital ATK
S&S MACHINE, INC.	SB	Boeing
SABOL AND RICE, INC.	VOSB	Orbital ATK
SALT LAKE VALVE & FITTING CO.	SB	Orbital ATK
SCB DIVISION OF DCX-CHOL ENTERPRISES, INC.	SB	Boeing, Orbital ATK
SCHMIEDE CORPORATION	WOSB	Boeing
SCHWARZKOPF TECHNOLOGIES, LLC	SB	Orbital ATK
SCOTT AND DEZI CANNON, LLC	SB	Orbital ATK
SEA WIRE & CABLE	WOSB	Boeing
SEAL SCIENCE, INC.	SB	Boeing
SEALING DEVICES, INC.	VOSB	Boeing
SENSOTEC, INC.	SB	Orbital ATK
SEXTON WELDING SUPPLY CO.	SB	Teledyne Brown Engineering
SEY TEC	WOSB	Boeing
SHAPE FIDELITY, INC.	WOSB	Boeing
SHARP TOOL MANUFACTURING	WOSB	Orbital ATK
SHARPS TARPS, INC.	SB	Orbital ATK
SHERBURN ELECTRONICS, INC.	VOSB	Boeing
SHIPLEY ASSOCIATES	SB	Orbital ATK
SHULTZ STEEL CO.	SB	Boeing
SIERRA ALLOYS CO.	SB	Boeing
SILICONE PLASTICS, INC.	SB	Orbital ATK
SILVERADO CABLE CO., INC.	VOSB	Boeing
SIMCO ELECTRONICS	VOSB	Orbital ATK
SIX STATES DISTRIBUTORS, INC.	SB	Orbital ATK
SMALLEY STEEL RING CO.	SB	Boeing
SMITH POWER PRODUCTS, INC.	SB	Orbital ATK
SNELL INFRARED	SB	Orbital ATK
SOFTCHOICE CORPORATION	SDB, WOSB	Orbital ATK
SOFTWARE & ENGINEERING ASSOCIATES	SB	Orbital ATK
SOLID CONCEPTS, INC.	SB	Orbital ATK
SOLID-SCOPE MACHINING CO., INC.	WOSB	Boeing
OLON MANUFACTURING CO.	SB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
SOLUTION SYSTEMS TECHNLOGY, INC.	WOSB	Boeing
SOUTH VALLEY SPECIALTIES	SB	Orbital ATK
SOUTHERN TOOL STEEL	SDB, WOSB	Orbital ATK
SOUTHLAND PRECISION	SB	Boeing
SPACE LOK, INC.	SB	Boeing
SPACETIME MACHINE CO., INC.	SB	Boeing
SPAULDING COMPOSITES, INC.	SB	Orbital ATK
SPECIALIZED ANALYSIS ENGINEERING, INC.	SB	Orbital ATK
SPECIALTY ADHESIVES, INC.	SB	Boeing
SPIRA MANUFACTURING CORP.	VOSB	Boeing
SPIRIT ELECTRONICS, INC.	SDB, WOSB	Boeing
ST ELECTRONICS INTL., INC.	SB	Boeing
STADCO	SB	Boeing, Orbital ATK
STAG ENTERPRISE, INC.	SDB, WOSB, VOSB	Boeing
STANDARD WIRE & CABLE CO.	SB	Boeing
STANLEY COVERGENT SECURITY SOLUTIONS, INC.	SB	Orbital ATK
STARS AND STRIPES AEROSPACE	SDB, HUBZone	Orbital ATK
STATE TECHNOLOGY & MFG., LLC	SDB, SDVOSB	Orbital ATK
STAVISH CONSTRUCTION, INC.	SB	Orbital ATK
STEEL FAB, INC.	VOSB	Orbital ATK
STEELVILLE MANUFACTURING CO.	SB	Boeing
STEIN SEAL CO.	SB	Aerojet Rocketdyne
STELLAR TECHNOLOGY, INC.	SB	Orbital ATK
STERLING COMPUTERS CORP.	WOSB	Boeing
STRAINERT CO.	SB	Boeing, Orbital ATK
STREAMLINE PLASTICS, INC.	SB	Orbital ATK
STREAMTECH, INC.	WOSB	Orbital ATK
STUART INDUSTRIES, INC.	WOSB	Boeing
STYLISH FABRICS	SB	Orbital ATK
SUGARHOUSE AWNING & CANVAS	SB	Orbital ATK
SUMMIT ROOFING & WATERPROOFING	SB	Orbital ATK
SUNSOURCE FLUID POWER TECH	SB	Orbital ATK
SUPERFORM USA, INC. (A DIVISION OF LUXFER, INC.)	SB	Boeing
SUPERIOR GRINDING & SALES, INC.	WOSB	Orbital ATK
SUPERIOR METAL SHAPES	SB	Orbital ATK
SUPERLOGICS	SB	Orbital ATK
SUPREME MACHINE PRODUCTS, INC.	SB	Boeing
SYSTEC BUSINESS SYSTEMS, INC.	SB	Orbital ATK
SYSTEL, INC.	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
T S INDUSTRIES, LLC	SB	Orbital ATK
TALBERT MANUFACTURING, INC.	SB	Orbital ATK
TALON TEST LABORATORIES	SB	Boeing
TAMIR SILVERS, LLC	SB	Orbital ATK
TAVIS CORPORATION	SDB	Boeing
TAYCO ENGINEERING, INC.	SB	Boeing, Orbital ATK
TC SPECIALTIES	SB	Orbital ATK
TECHNICAL MARKETING MFG., INC.	SB	Orbital ATK
TECHNICAL MICRONICS CONTROL, INC.	VOSB	Boeing
TECHNIFAB, INC.	SB	Boeing
TECHNOLOGY MARKETING, INC.	SB	Orbital ATK
TEC-MASTERS, INC.	SB	Teledyne Brown Engineering
TELEDYNE LECROY	SB	Orbital ATK
TELETRONICS TECHNOLOGY CORP.	SB	Orbital ATK
TESCO WILLIAMSEN	SB	Orbital ATK
TESSA PRECISION PRODUCTS, INC.	SB	Boeing
TEST EQUIPMENT DISTRIBUTORS, LLC	SB	Orbital ATK
TEST SYSTEMS, INC.	SB	Boeing
TESTEQUITY, LLC	SB	Orbital ATK
THE CHAMP CO.	SB	Orbital ATK
THE PACKAGER, INC.	WOSB	Orbital ATK
THE ULTRAN GROUP, INC.	SB	Orbital ATK
THEONICS	WOSB	Boeing
THERMAL WAVE IMAGING, INC.	SB	Orbital ATK
THERMAL WEST INDUSTRIAL, INC.	SB	Orbital ATK
THERMO ELECTRIC CO., INC.	SB	Orbital ATK
THOMAS PETROLEUM, LLC	SB	Orbital ATK
TIEMANN INDUSTRIAL SUPPLY CO.	SB	Boeing
TIN MAR, INC.	WOSB	Boeing, Teledyne Brown Engineering
TITAN GAGE, INC.	SB	Orbital ATK
TNT ENGRAVING	SB	Orbital ATK
TODD MACHINERY, INC.	SB	Orbital ATK
TOOLROOM, INC.	VOSB	Boeing
TOTE SYSTEMS INTL., LP	SB	Orbital ATK
TPS AVIATION, INC.	VOSB	Boeing
TRI-TEK ELECTRONICS	SDB, WOSB	Boeing
TRILION QUALITY SYSTEMS, LLC	SB	Orbital ATK
TRILOGY CIRCUITS, INC.	SB	Orbital ATK
TRIMAN INDUSTRIES, INC.	SB	Boeing
TRIVAD, INC.	WOSB	Boeing
TRIVECTOR SERVICES, INC.	SB	Teledyne Brown Engineering
TRU-CUT STEEL RULE DIE	SB	Orbital ATK

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
TSI PLASTICS, INC.	SB	Boeing
TSP DISTRIBUTORS, INC.	WOSB	Orbital ATK
TTI ACQUISITION CORPORATION	SB	Orbital ATK
TURBOCAM, INC.	SB	Aerojet Rocketdyne
TURNER SUPPLY CO.	VOSB	Boeing
TYONEK MANUFACTURING GROUP, INC.	SB	Teledyne Brown Engineering
UEMC, INC.	SB	Orbital ATK
ULINE, INC.	SB	Orbital ATK
ULTIMATE HYDROFORMING, INC.	WOSB	Boeing
UNIFLEX CIRCUITS	SB	Orbital ATK
UNITED PLATING, INC.	SB	Boeing
UNITED PRECISION MACHINE	WOSB	Orbital ATK
UNITED RENTALS NORTH AMERICA	SB	Orbital ATK
UNITED SEAL AND RUBBER CO., INC.	SDB, VOSB	Boeing
UNITED SITE SERVICES OF NEVADA	SB	Orbital ATK
UNIWEST	SB	Orbital ATK
UPLAND FAB, INC.	SB	Boeing
U.S. ELECTRONICS, INC.	SB	Orbital ATK
U.S. HOSE CORPORATION	SB	Boeing
U.S. ULTRATEK, INC.	SB	Orbital ATK
U.S. WELDING, INC.	WOSB	Orbital ATK
UTAH FOAM PRODUCTS CO., INC.	SB	Boeing, Orbital ATK
VALCOR ENGINEERING CORP.	SB	Boeing
VALIMET, INC.	SB	Orbital ATK
VALIN CORPORATION	SB	Orbital ATK
VALLEY HEAT TREAT CO.	WOSB	Boeing
VALLEY TOOL & MACHINE CO., INC.	WOSB	Boeing, Orbital ATK
VALVE SOLUTIONS	SB	Orbital ATK
VANGUARD ELECTRONICS CO.	SB	Boeing
VANTAGE ASSOCIATES, INC.	SB	Boeing
VENABLE INSTRUMENTS	SB	Orbital ATK
VERIFIDE TECHNOLOGIES, INC.	SB	Boeing
VERISURF SOFTWARE, INC.	SB	Orbital ATK
VERTEX DIAMOND TOOL CO., INC.	WOSB	Orbital ATK
VERTICAL ENTERPRISE EQUIPMENT	SB	Boeing
VERYST ENGINEERING	SB	Orbital ATK
VISHAY MEASUREMENTS GROUP, INC.	SB	Orbital ATK
VISIBLE DISPLAY CORPORATION	SB	Orbital ATK
VISION RESEARCH, INC.	SB	Orbital ATK
VISIONEERING, INC.	SB	Boeing, Orbital ATK
VITOLS TOOL & MACHINE CORP.	SB	Boeing
VM PRODUCTS, INC.	SB	Orbital ATK
VMC GROUP	SB	Boeing

SLS SMALL BUSINESS	SOCIO-ECONOMIC CATEGORY	PRIME CONTRACTOR
VOSLER CONSULTING	SB	Orbital ATK
VOSS INDUSTRIES, INC.	SB	Orbital ATK
VOTAW PRECISION TECHNOLOGIES	WOSB	Orbital ATK
VTI INSTRUMENTS CORPORATION	SB	Orbital ATK
WA HAMMOND DRERITE CO. LTD.	SB	Orbital ATK
WAGSTAFF CRANE SERVICE, LLC	SB	Orbital ATK
WALTER G. LEGGE CO., INC.	SB	Orbital ATK
WALTON TRAILERS	SB	Orbital ATK
WARD DAVIS ASSOCIATES, INC.	SB	Boeing
WATRING TECHNOLOGIES, INC.	SDB	Boeing
WB INDUSTRIES	SDB	Boeing
WEETECH, INC.	SB	Boeing
WELCO ELECTRONICS	WOSB	Boeing
WESCO AIRCRAFT HARDWARE CORPORATION	SB	Orbital ATK
WEST COAST AEROSPACE, INC.	SB	Boeing
WEST COBB ENGINEERING	WOSB	Teledyne Brown Engineering
WESTERN ENGINEERING, INC.	SDB	Orbital ATK
WESTERN GATEWAY STORAGE CORPORATION	SB	Orbital ATK
WESTERN STATES CALIBRATION	SB	Orbital ATK
WESTMORELAND MECHANICAL TESTING AND RESEARCH, INC.	SB	Orbital ATK
WESTWIND TECHNOLOGIES, INC.	SB	Boeing
WILDWOOD ELECTRONICS, INC.	WOSB	Boeing
WILLIAM E. WHITE	SB	Orbital ATK
WILLIAMS AND HUSSEY MACHINE CO.	SB	Orbital ATK
WILLIAMS FORM ENGINEERING CORPORATION	SB	Orbital ATK
WILSEA CORPORATION	WOSB	Orbital ATK
WILSON AEROSPACE, LLC	SB	Boeing
WINMARK, INC.	WOSB	Orbital ATK
WINN MARION BARBER, LLP	SB	Orbital ATK
WIREMASTERS, INC.	SB	Boeing, Orbital ATK
WOLVERINE BRONZE CO.	VOSB	Boeing
WOMACK MACHINE SUPPLY CO.	SB	Orbital ATK
WRIGHT EXERCISE	SB	Boeing
WV COMMUNICATIONS, INC.	SB	Boeing
XSIS ELECTRONICS, INC.	SB	Boeing
YARDNEY TECHNICAL PRODUCTS, INC.	VOSB	Boeing
ZALCO LABORATORIES, INC.	SB	Orbital ATK
ZERO MANUFACTURING, INC.	SB	Orbital ATK



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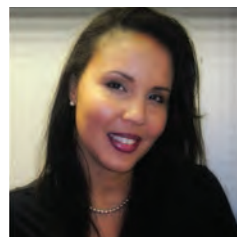
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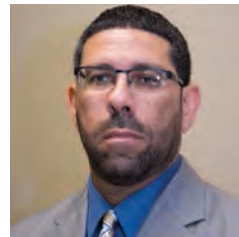
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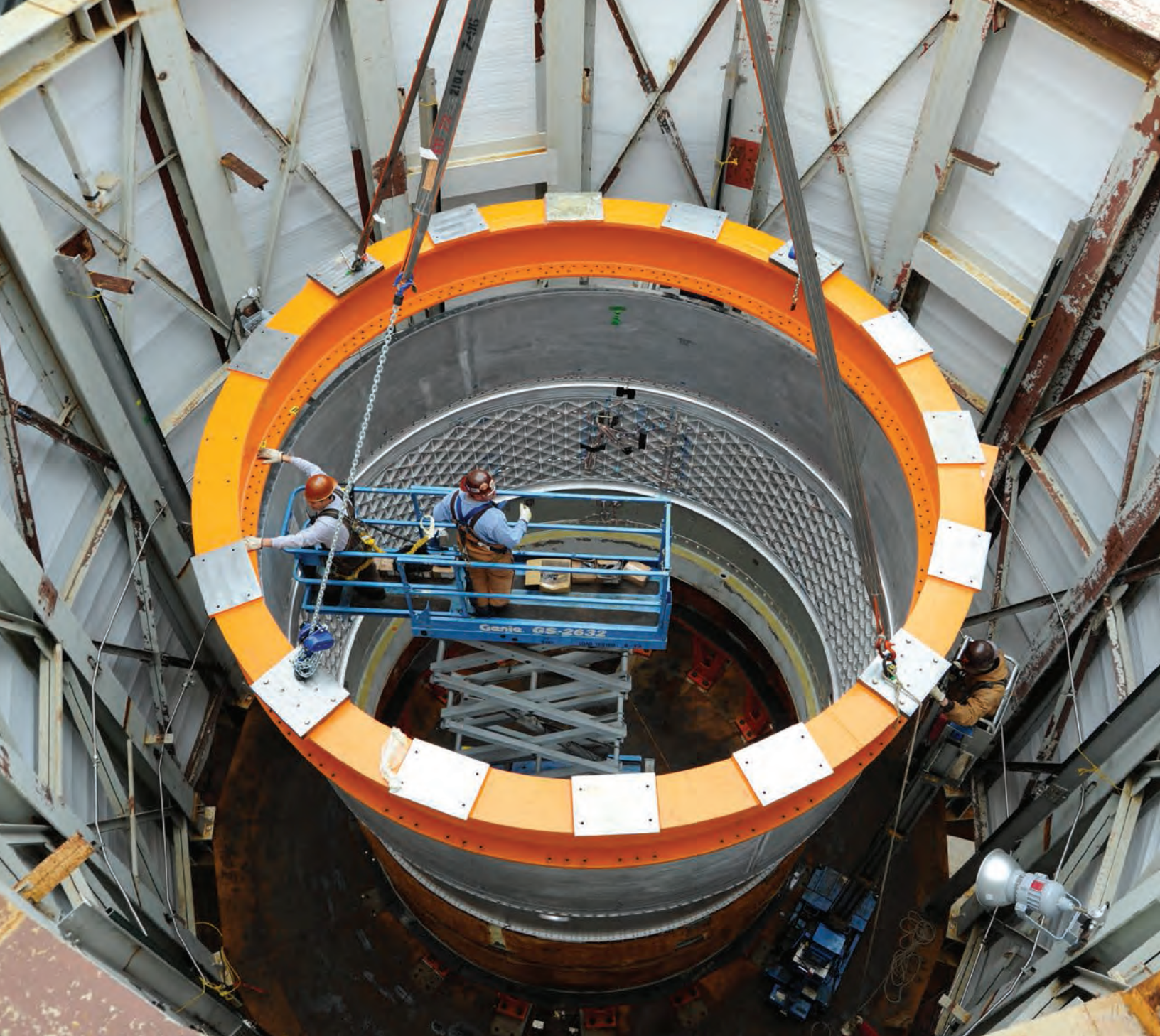
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